

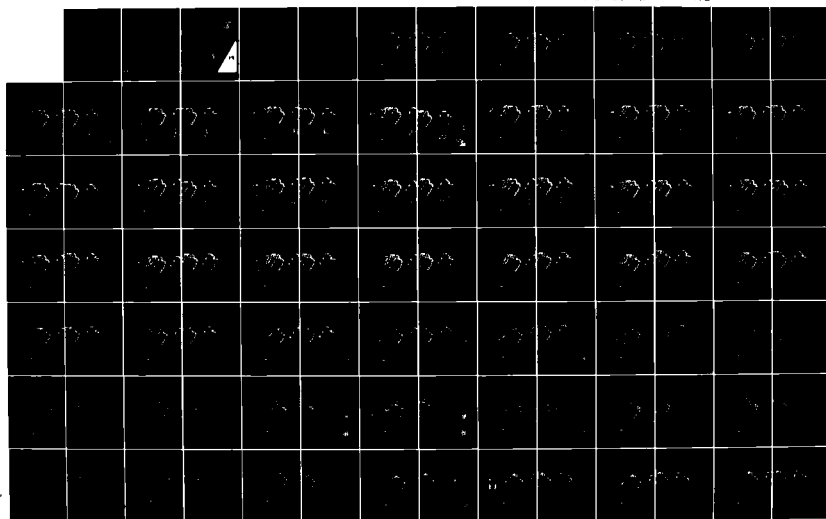
AD-A132 410 EASTERN-WESTERN ARCTIC SEA ICE ANALYSIS 1982(U) NAVAL
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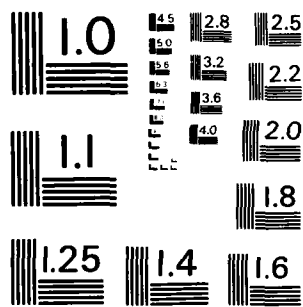
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**EASTERN—WESTERN
ARCTIC SEA ICE ANALYSIS
1982**

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**PREPARED BY
NAVAL POLAR OCEANOGRAPHY CENTER,
SUITLAND, MD**

DTC FILE COPY

**PREPARED FOR
COMMANDER,
NAVAL OCEANOGRAPHY COMMAND
NSTL STATION, BAY ST. LOUIS, MS 39529**

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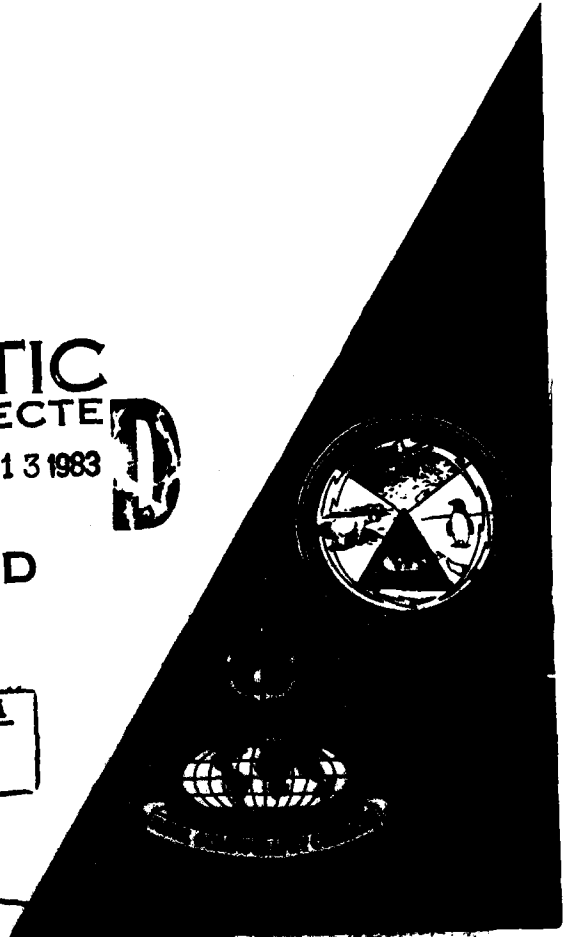
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FOREWORD

The U.S. Navy has a long and colorful history of polar exploration and currently is an active participant in the growing national activity in the Arctic and Antarctic. The strategic importance and increased demand for the natural resources of these areas have resulted in a greater requirement for environmental information. In 1976, the National Oceanic and Atmospheric Administration (NOAA) joined the Navy in forming a Joint Ice Center (JIC) to combine efforts and resources in sea ice analysis and forecasting.

Through 1972, reliable sea ice information in the polar regions was based on a relatively few shore station and ship reports augmented by limited aerial reconnaissance data. These data were further restricted mainly to the relatively small areas observed primarily during the ship operating seasons. The advent of high resolution satellite imagery combined with the ground truth of conventional observations has in recent years enabled a description of the polar ice fields on a semi-synoptic scale in both polar regions.

This publication is the ninth in a continuing yearly series of Arctic sea ice atlases prepared in the Joint Ice Center at the Naval Polar Oceanography Center, Suitland. The atlas contains weekly charts depicting Northern Hemisphere ~~and Great Lakes~~ ice conditions and extents. The information presented was prepared under operational time constraints principally from satellite imagery supplemented by conventional observations. The Great Lakes ice analyses are derived principally from information provided by the National Weather Service Forecast Office, Ann Arbor, Michigan. Table 1 located on the inside back cover summarizes satellite data availability for 1982.

The purpose of with reliable wee limitations and oth various forms of procedures:

(1) Conventional reconnaissance observations; timeliness;

(2) Satellite the most recent and conventional with sa

(3) Where suffi limit, an estimated availability the ic ice drift data and no data availability

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FOREWORD

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The purpose of this atlas is to provide operators and researchers with reliable weekly hemispheric ice analyses. Satellite data limitations and other difficulties involved in manually synthesizing various forms of ice data have evolved the following analysis procedures:

(1) a. Conventional shore station, ship and aerial ice reconnaissance observations are plotted on base charts and evaluated for timeliness;

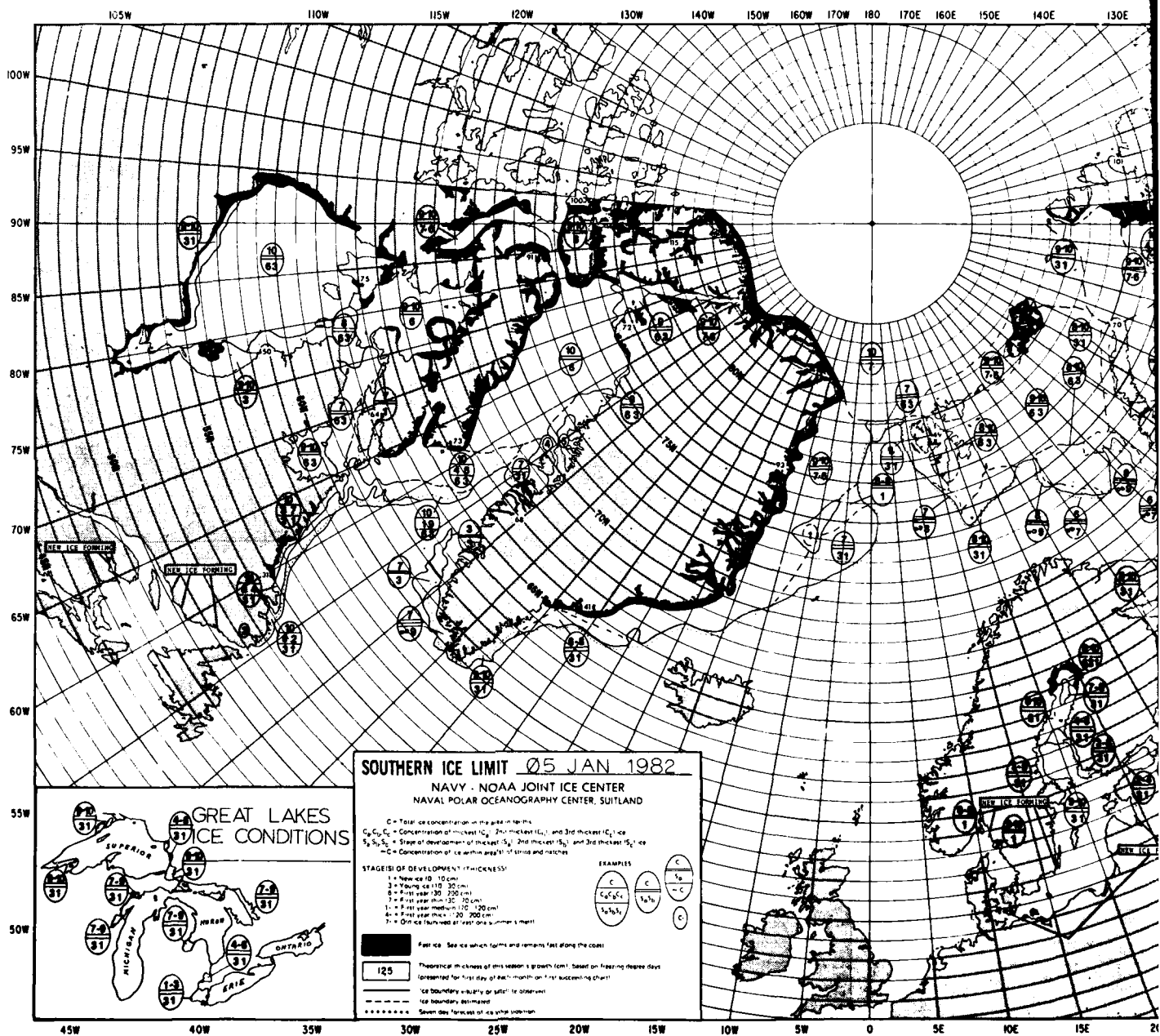
(2) b. Satellite data is analyzed for ice information content, with the most recent and highest resolution considered first. Synthesis of conventional with satellite data yields the final analysis;

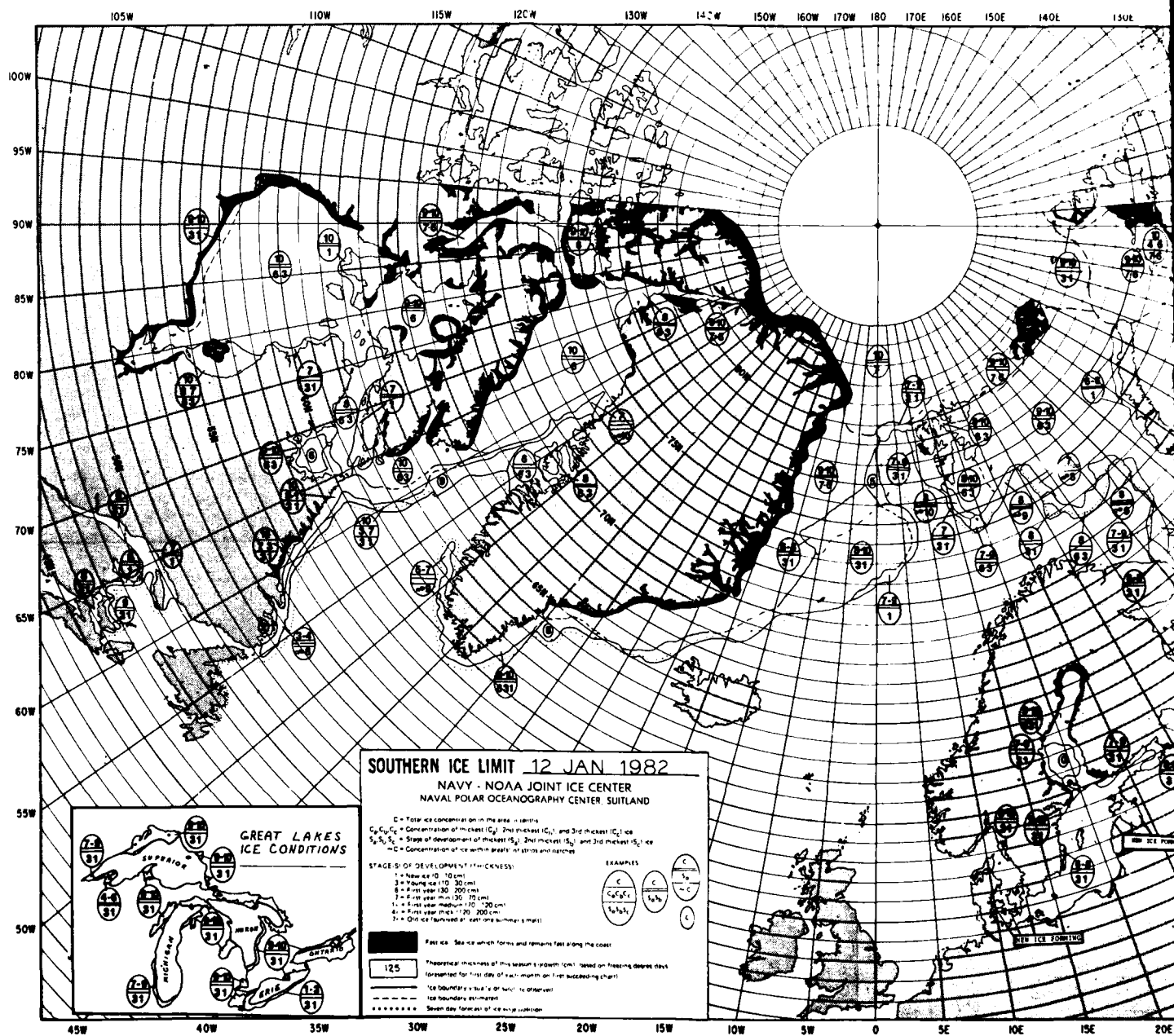
(3) c. Where sufficient data is not available to define the sea ice limit, an estimated boundary is depicted. After one week of no data availability the ice edge position is based on analyzed theoretical ice drift data and other diagnostic aids. During subsequent weeks of no data availability the ice edges approach seasonal mean positions.

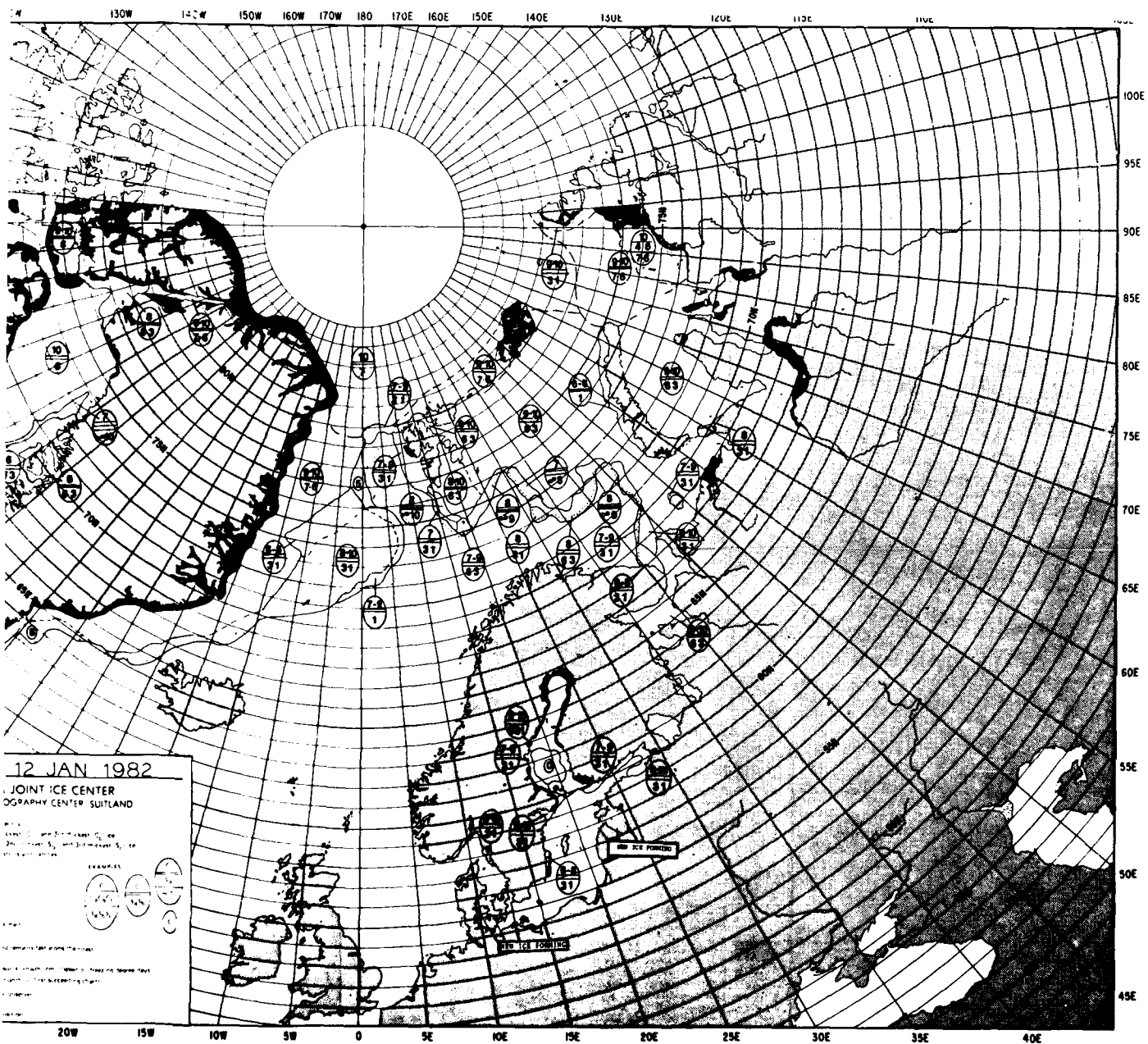
Joint Ice Center
Naval Polar Oceanography Center
4301 Suitland Road
Washington, DC 20390

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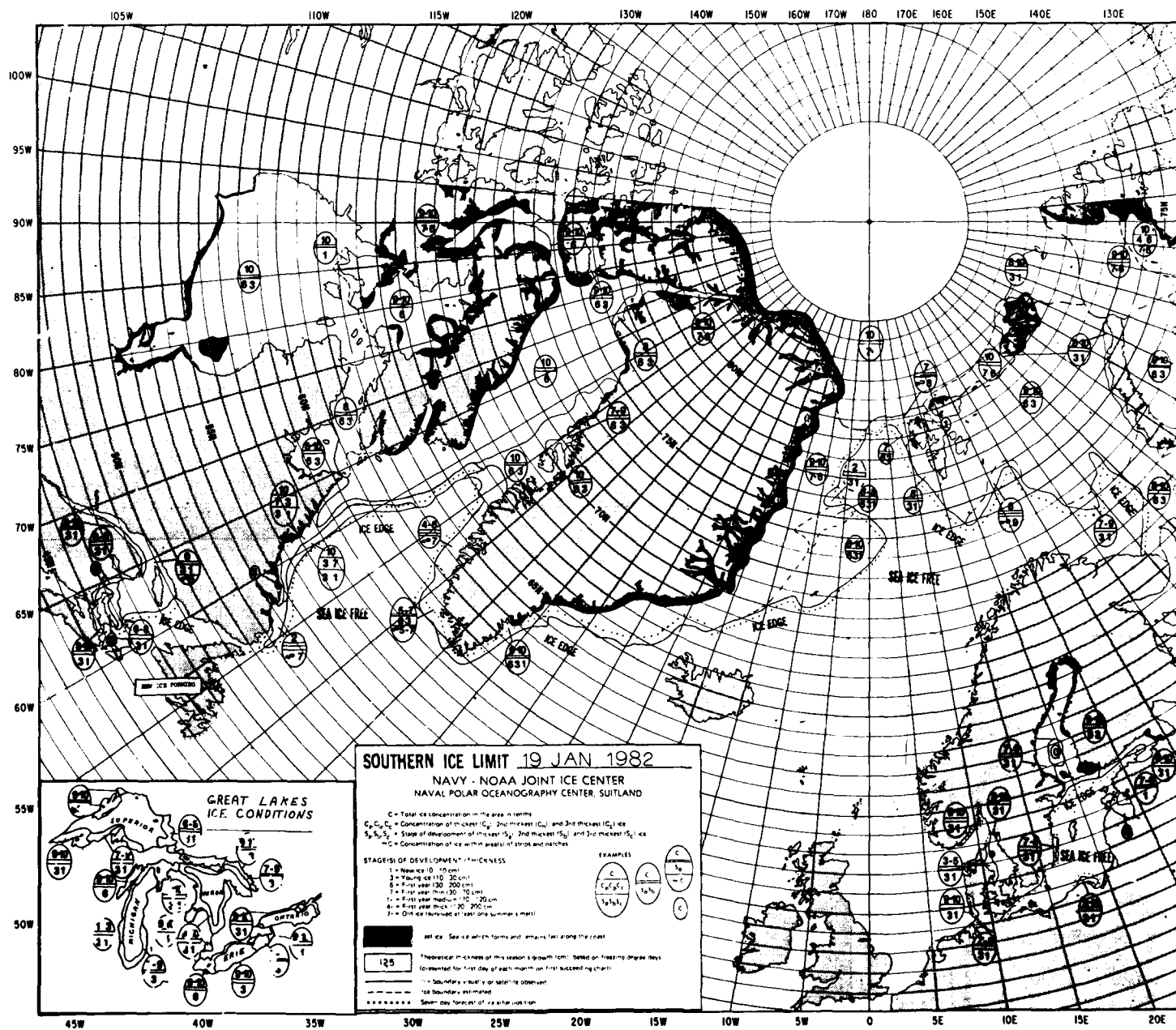


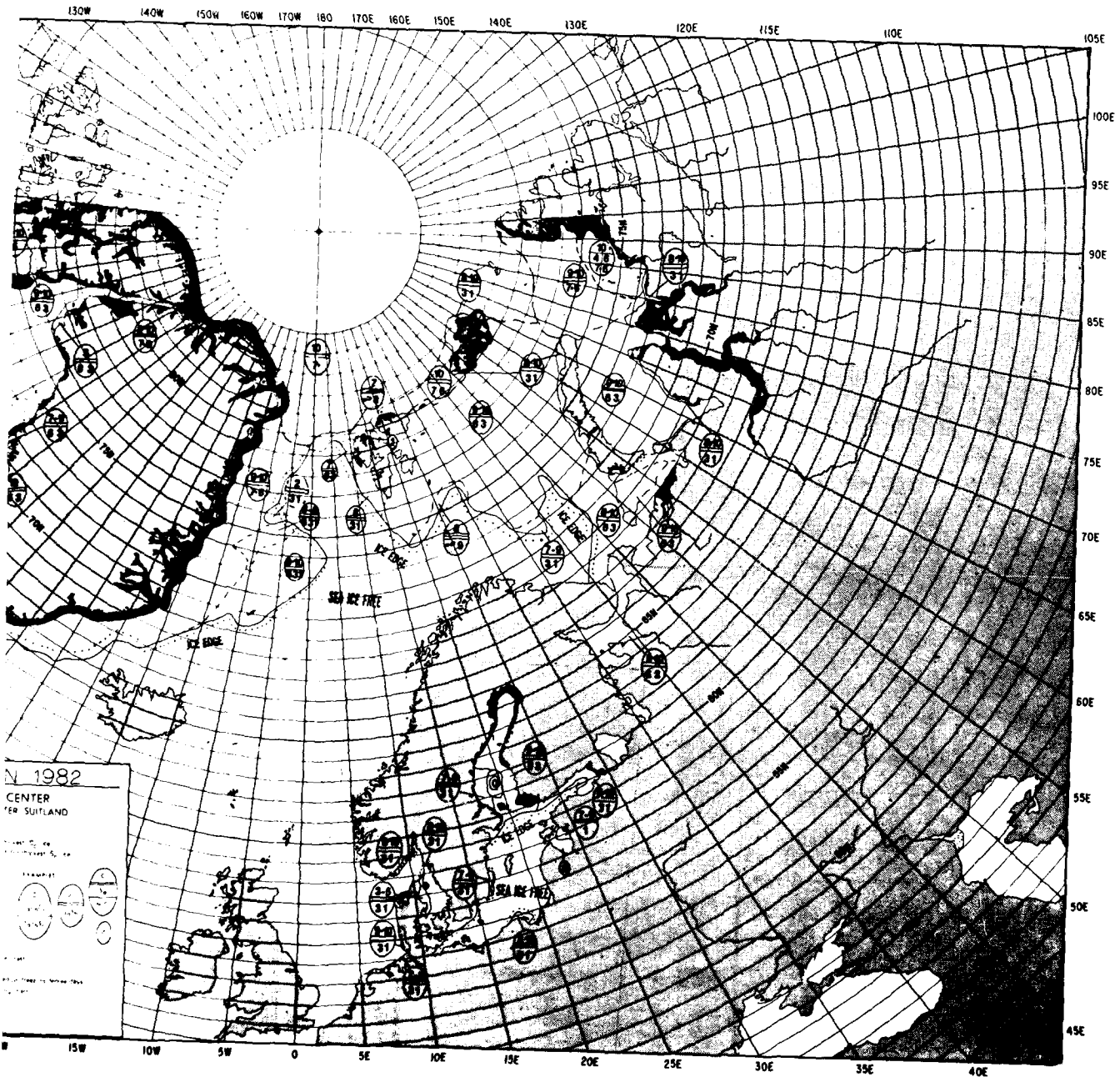


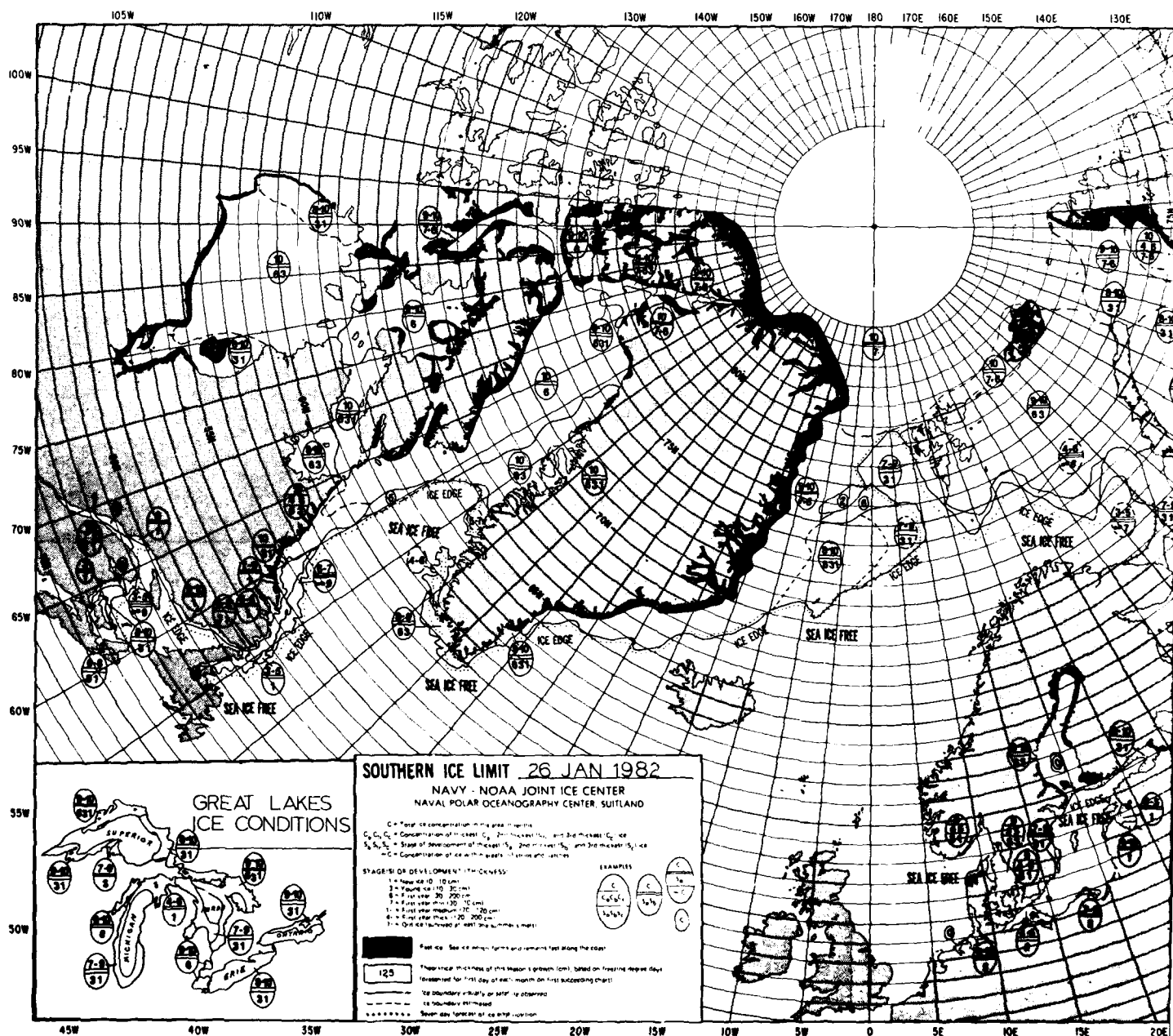


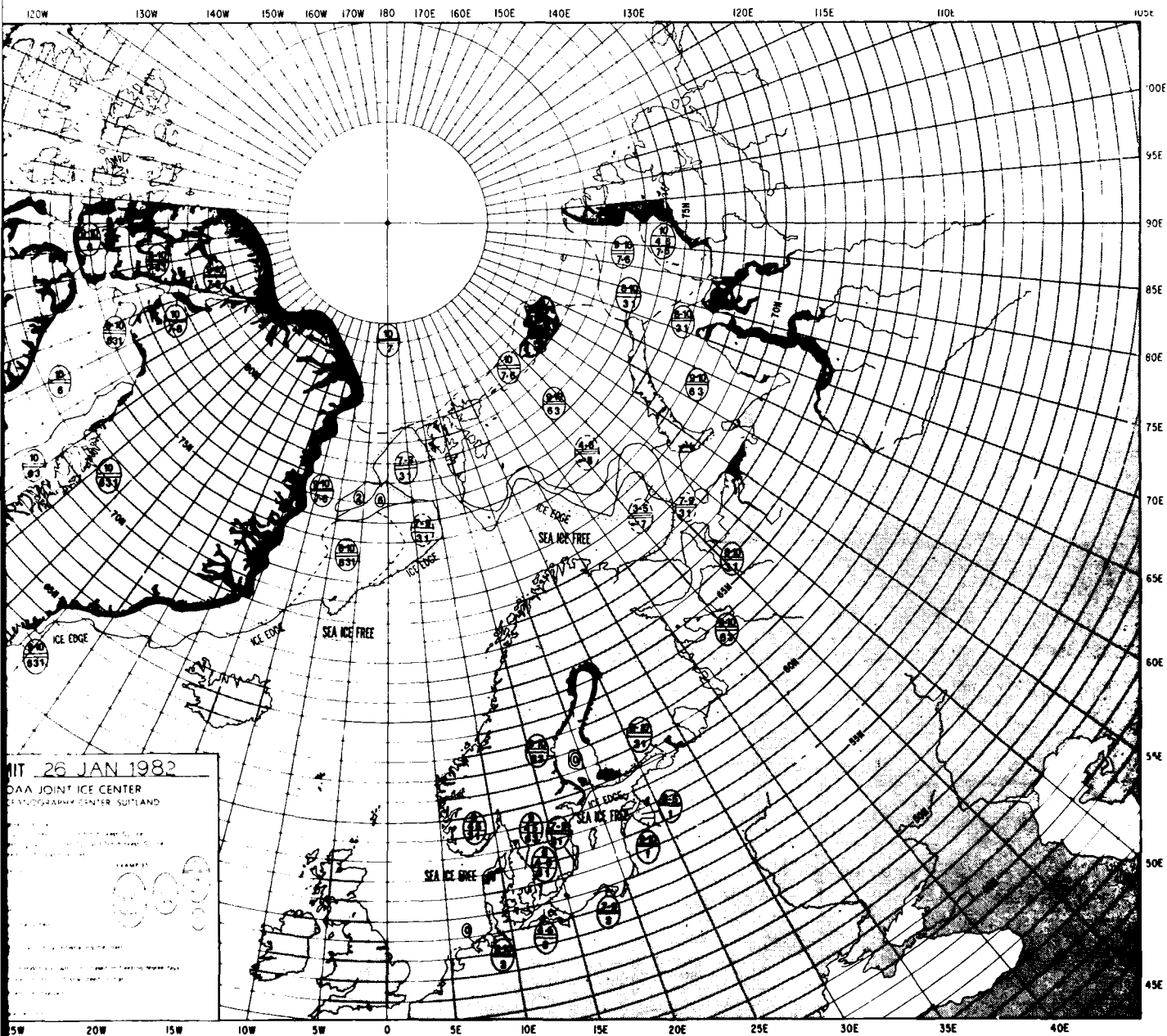


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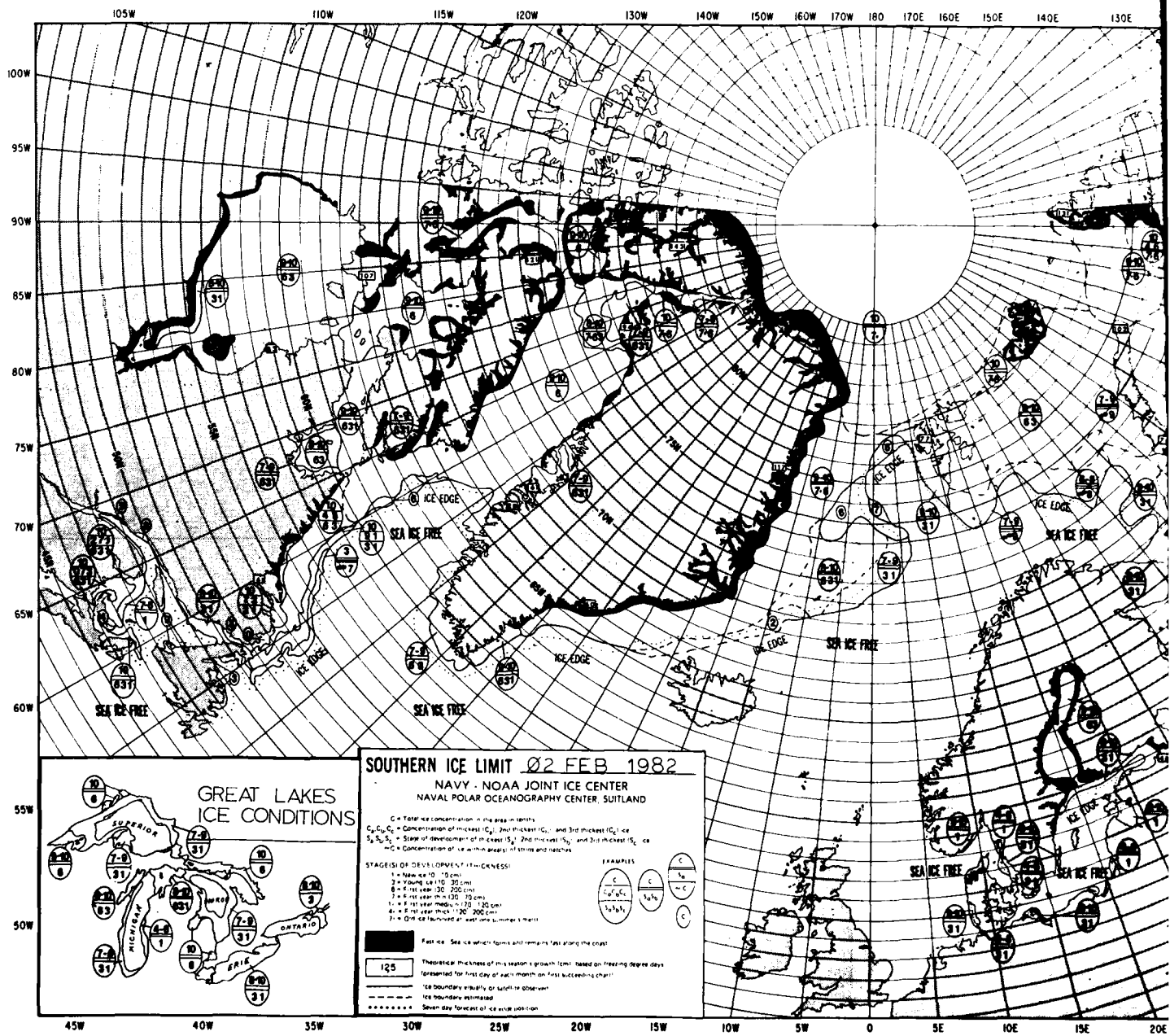


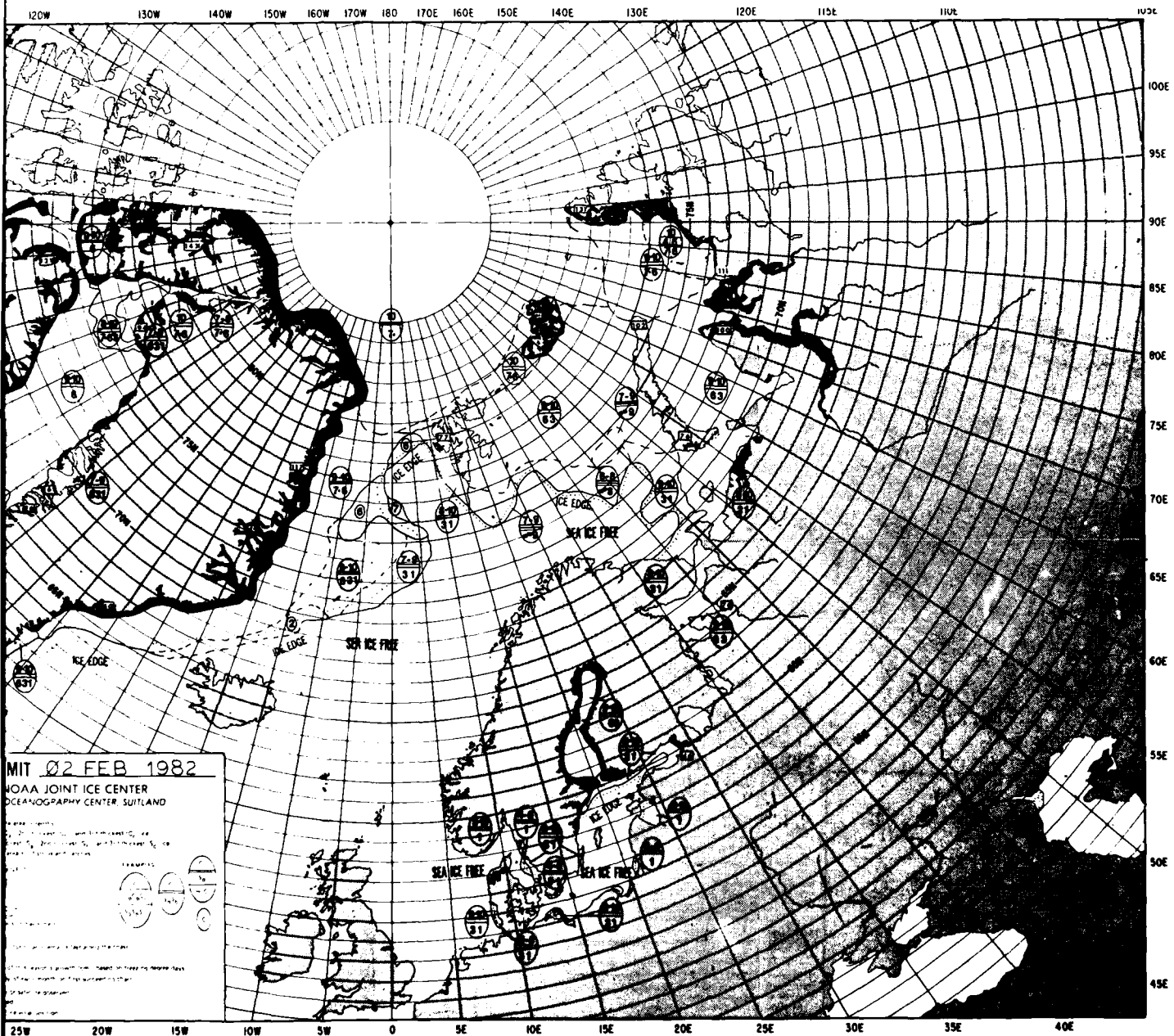


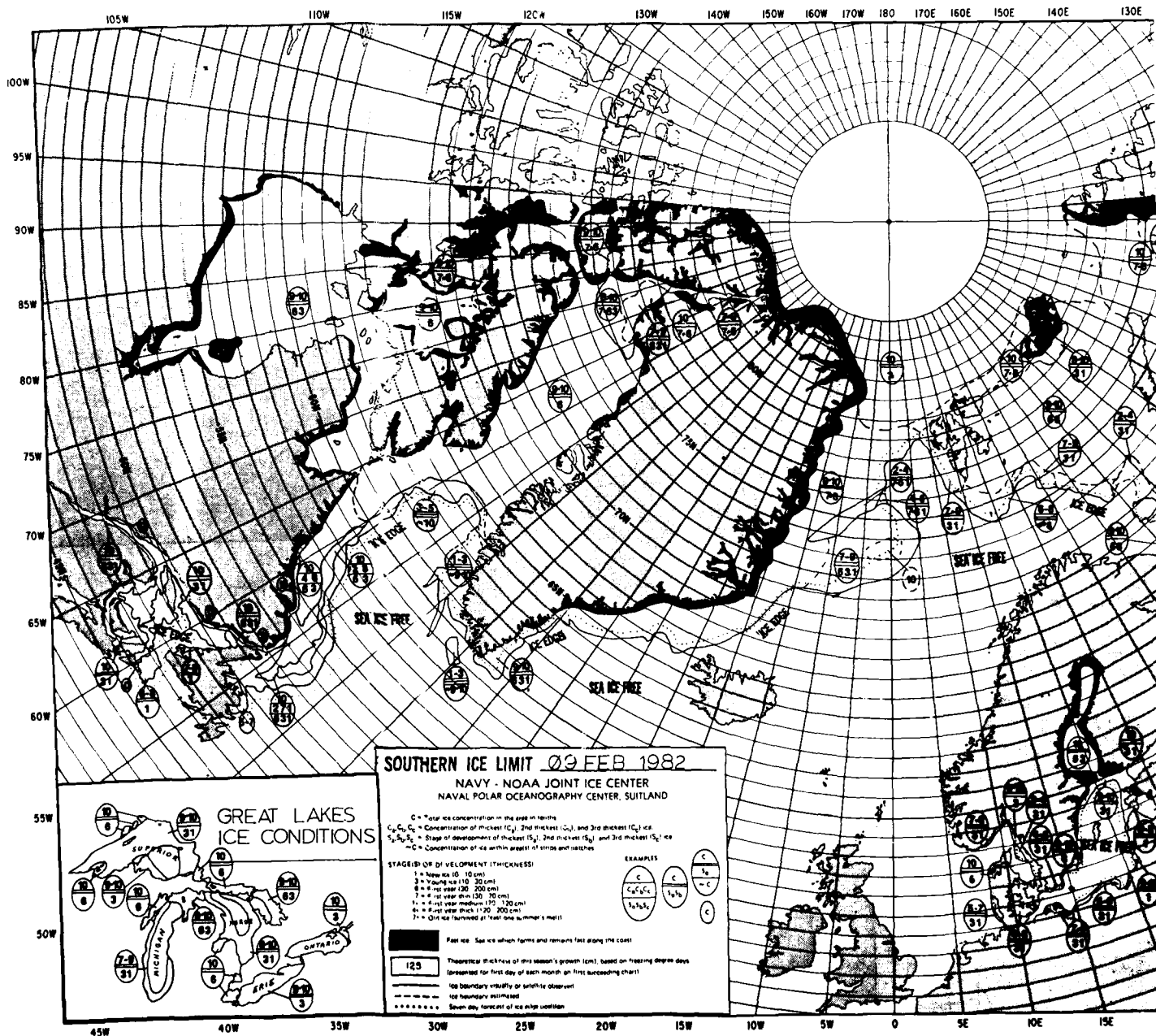


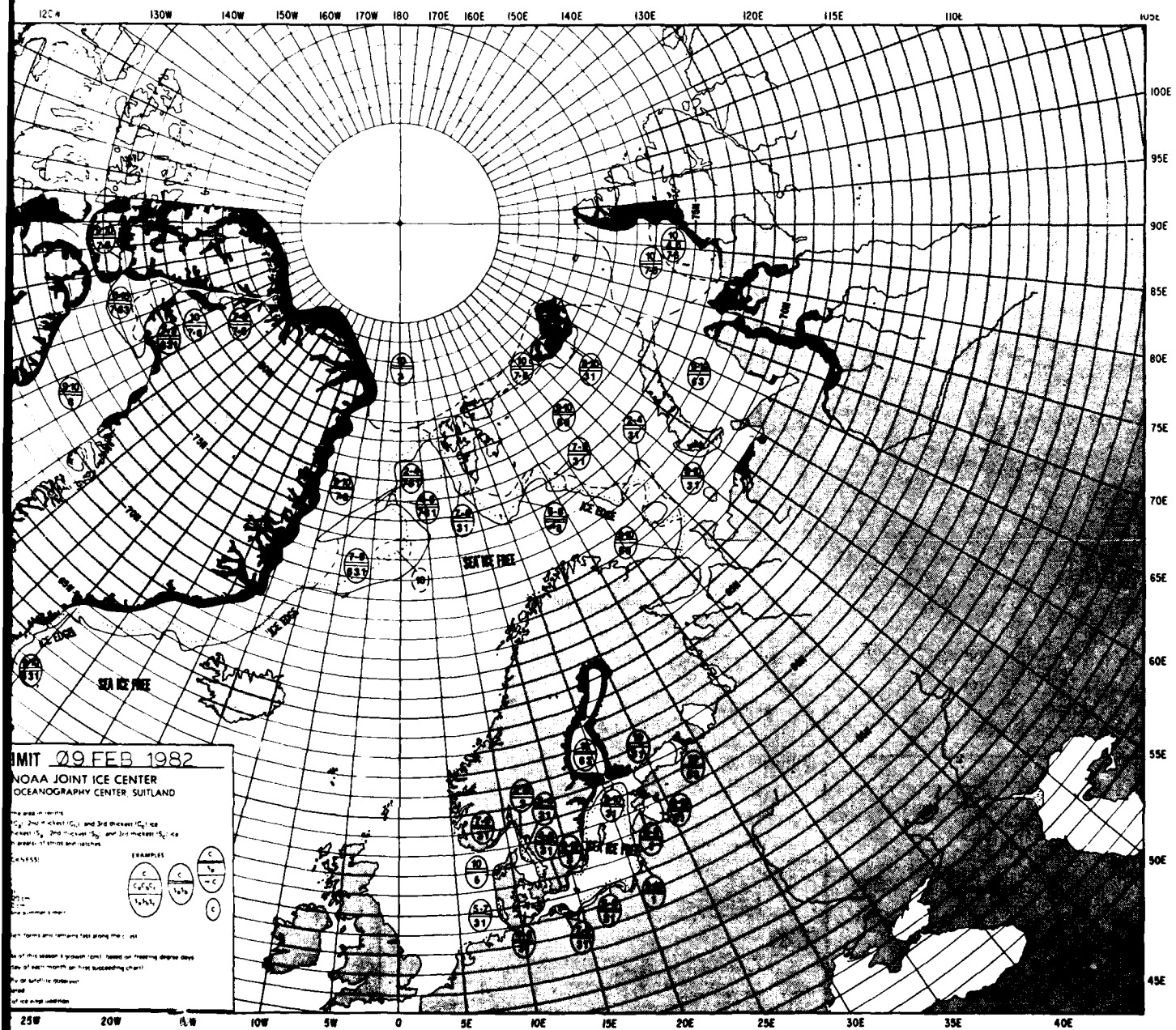


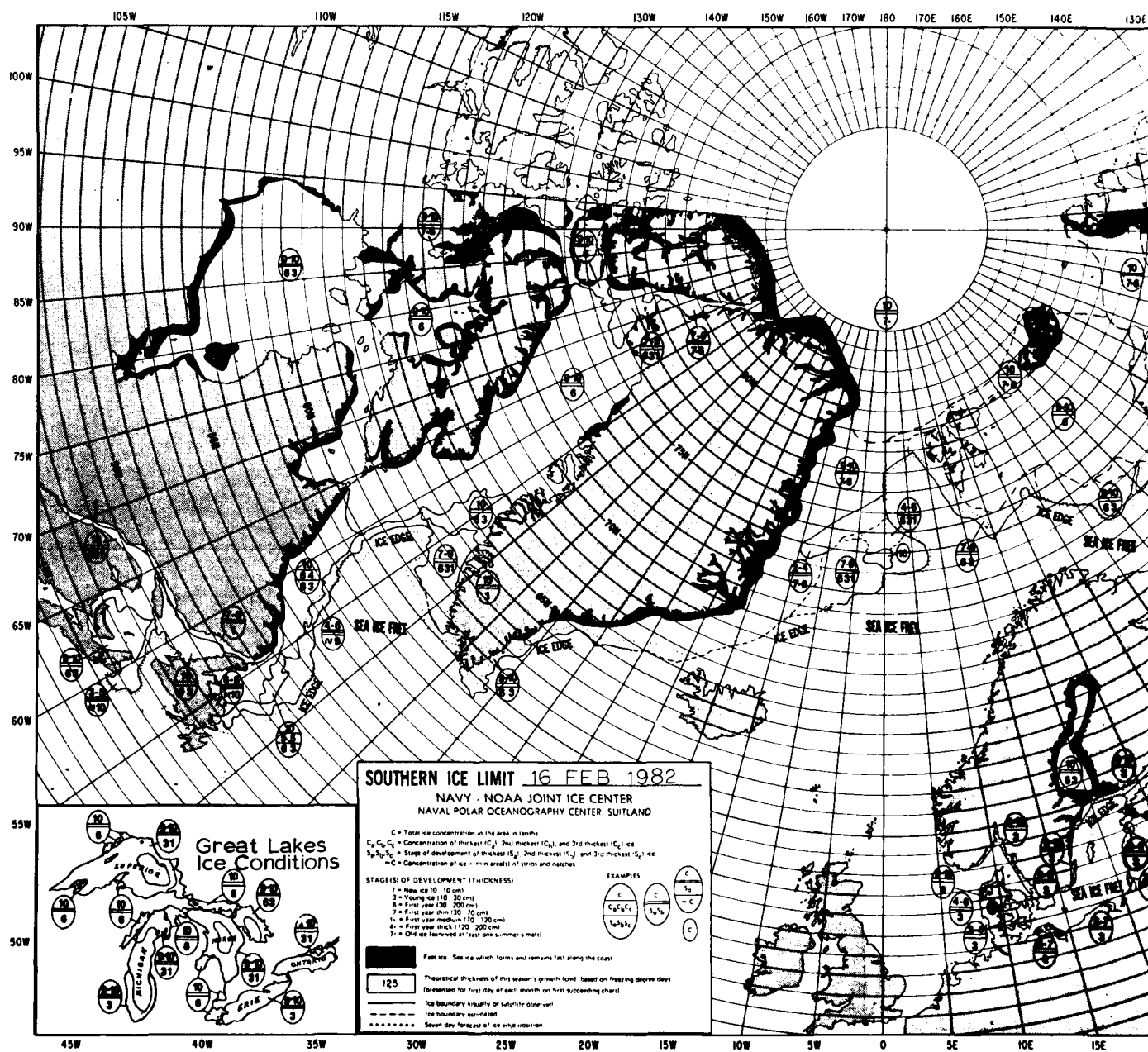
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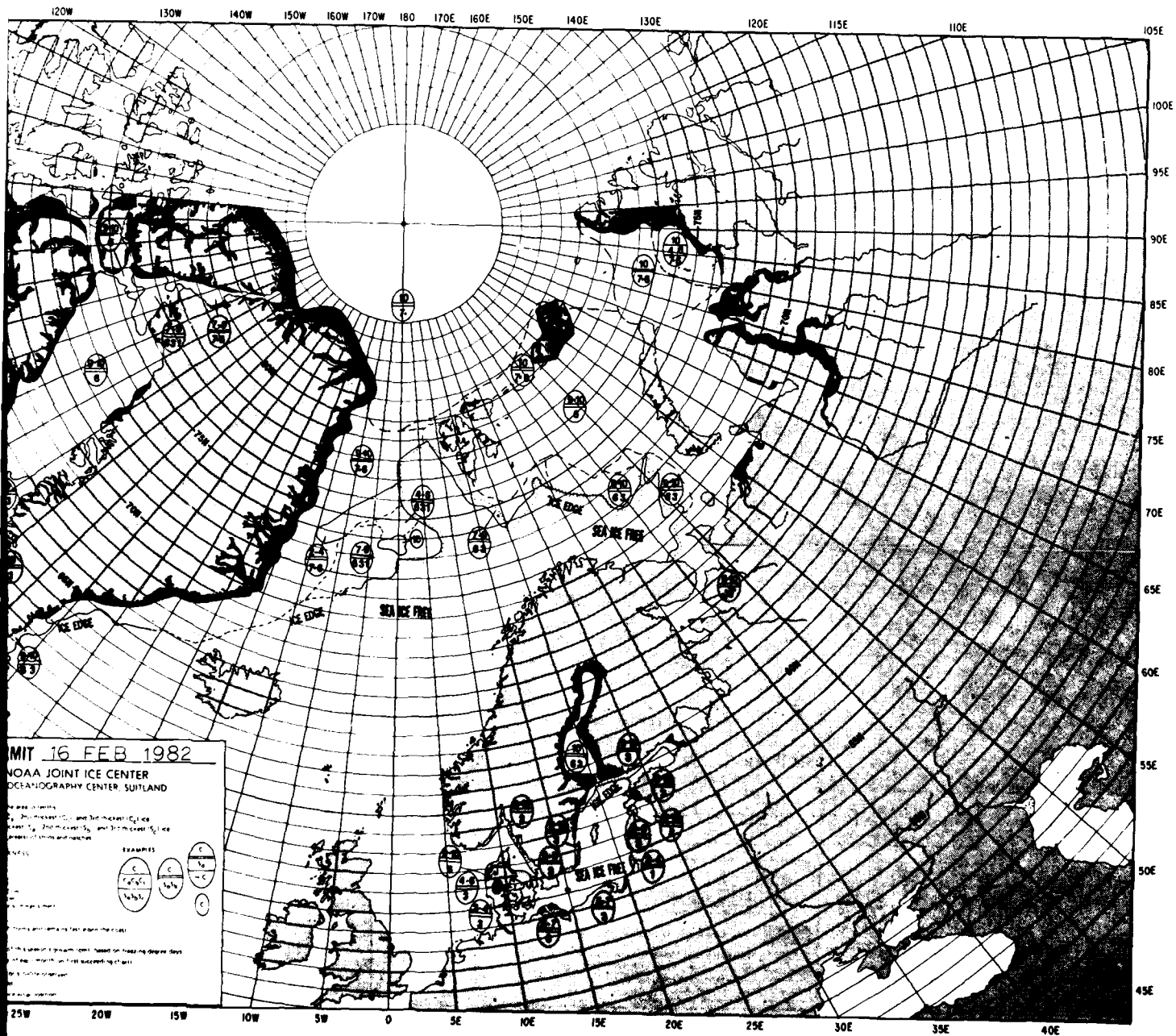


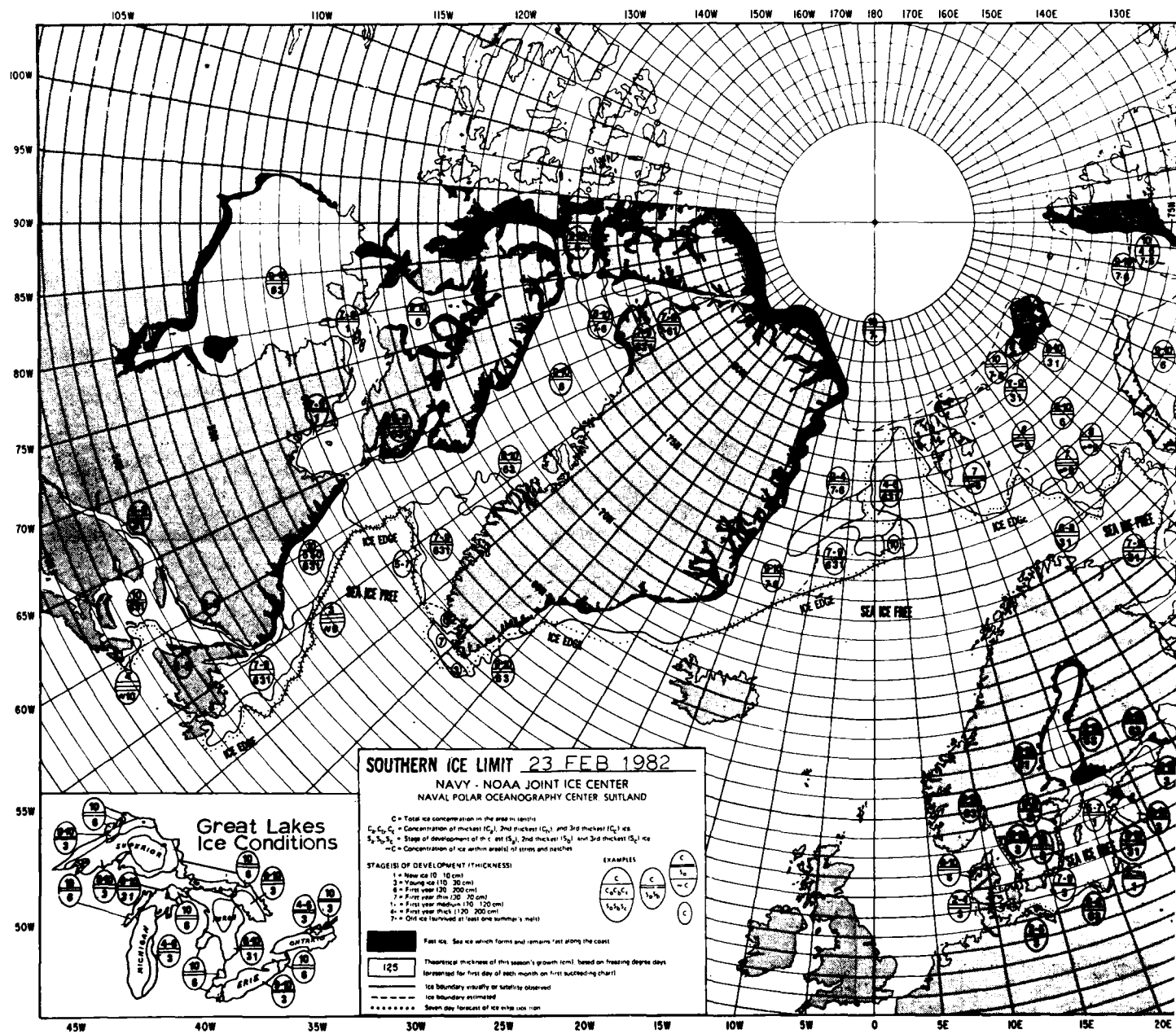


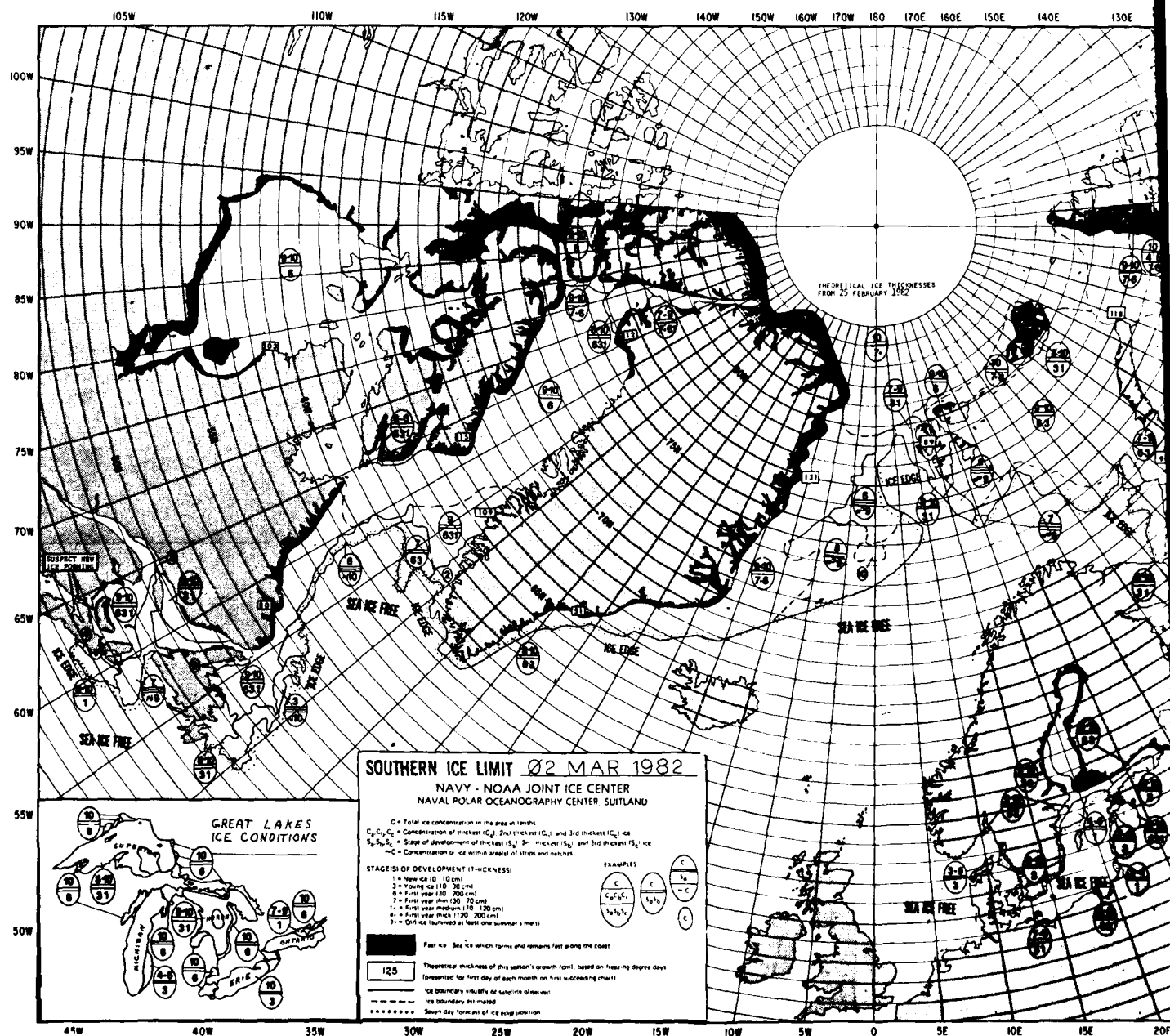


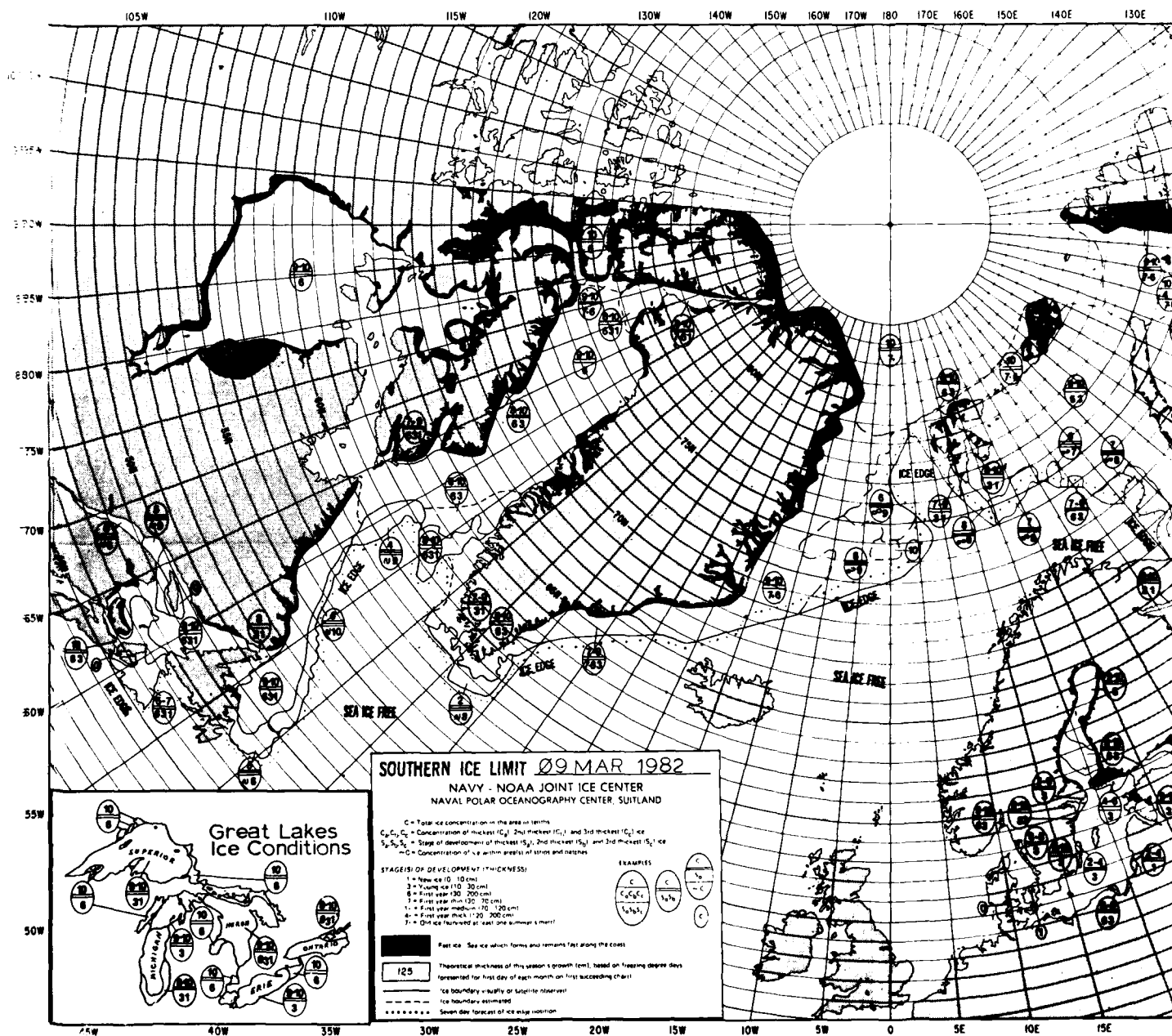


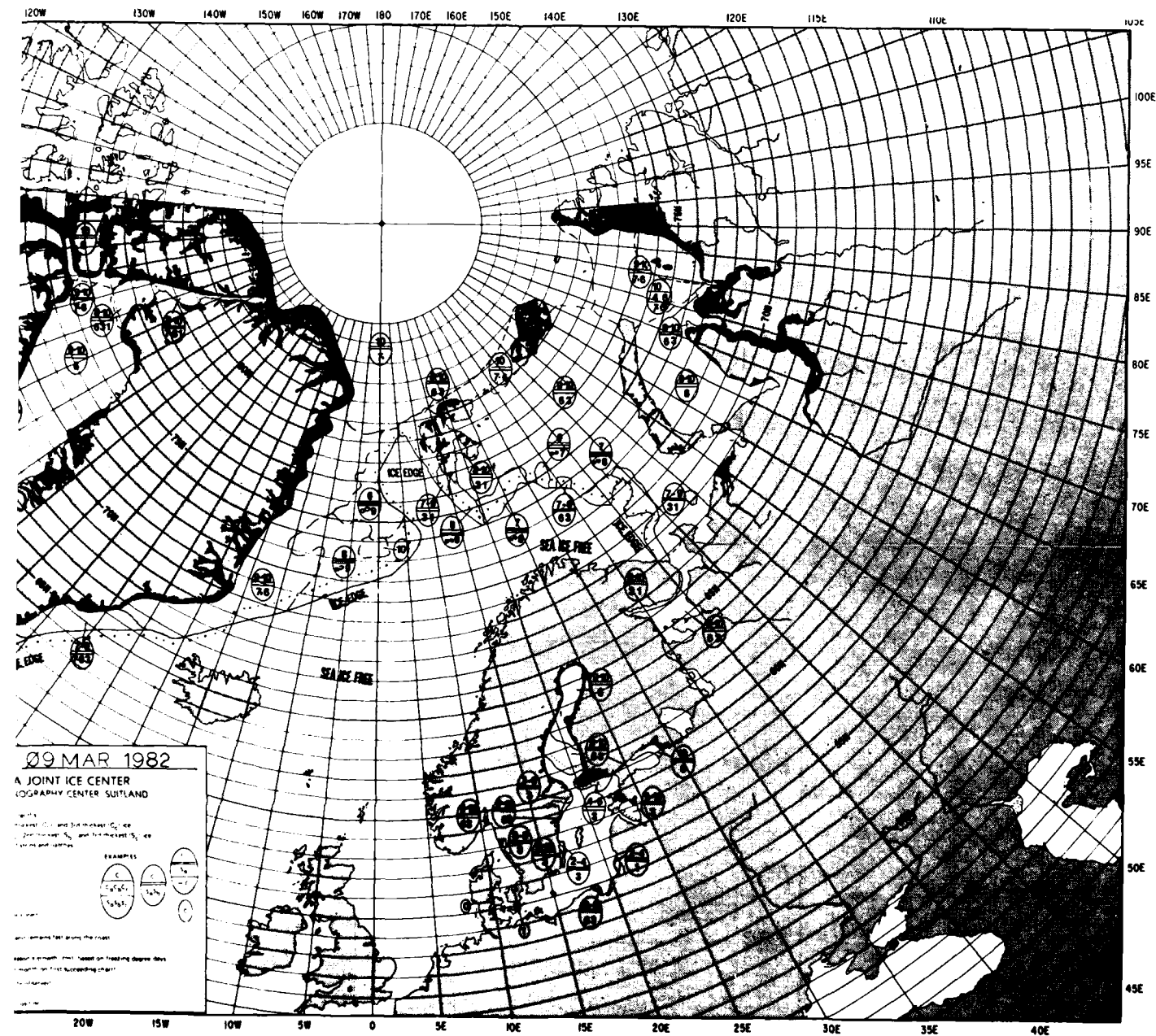




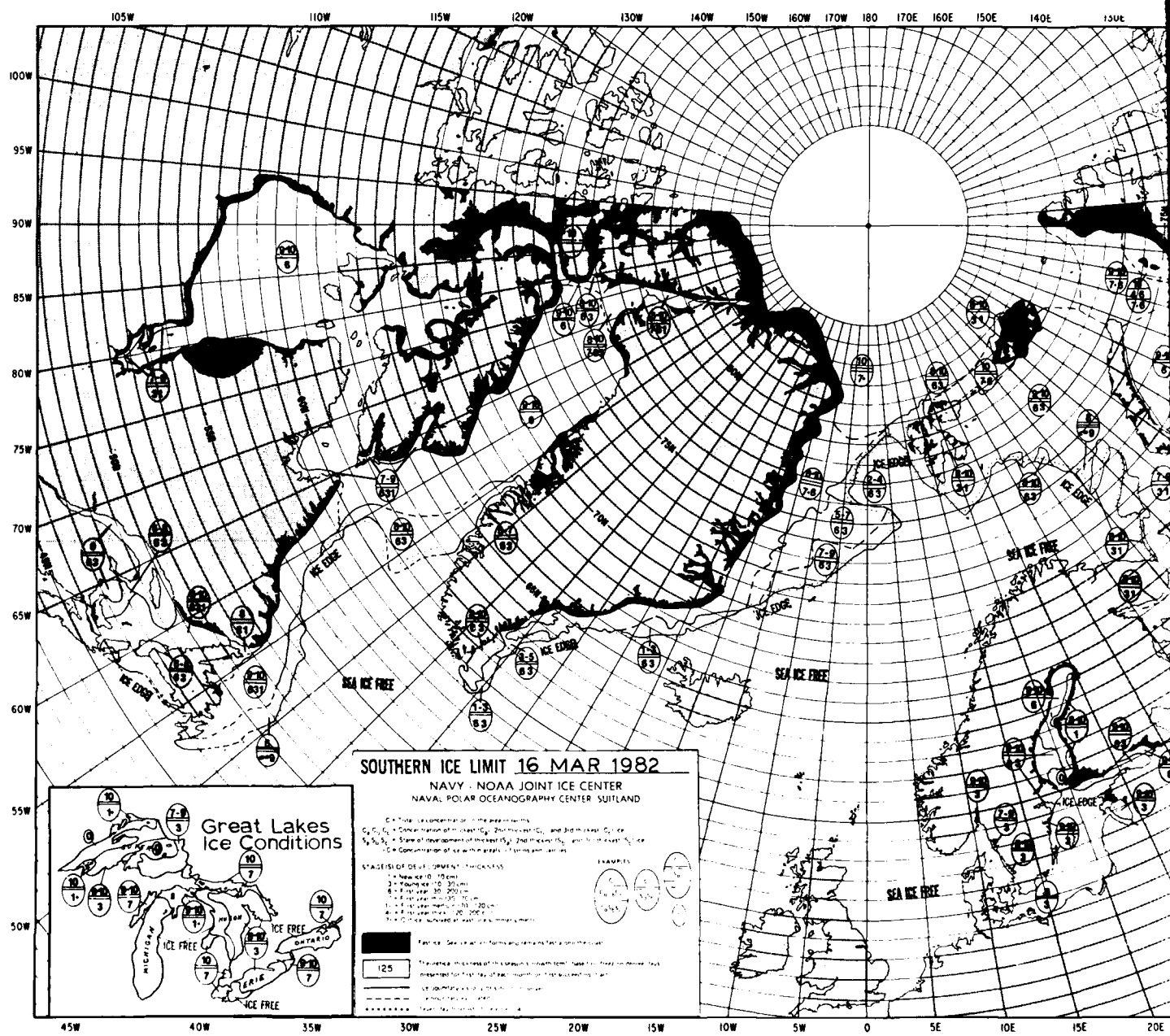


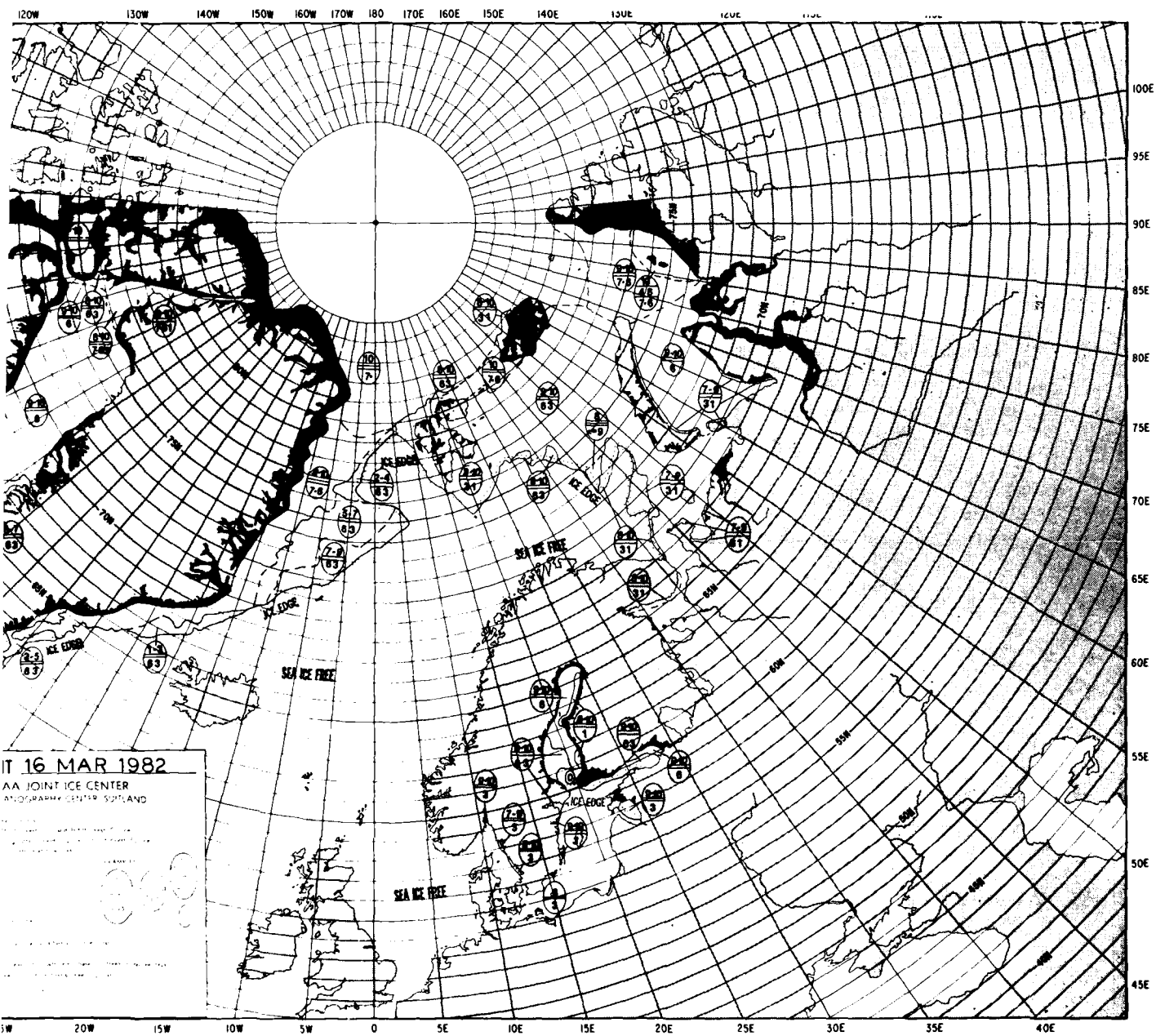




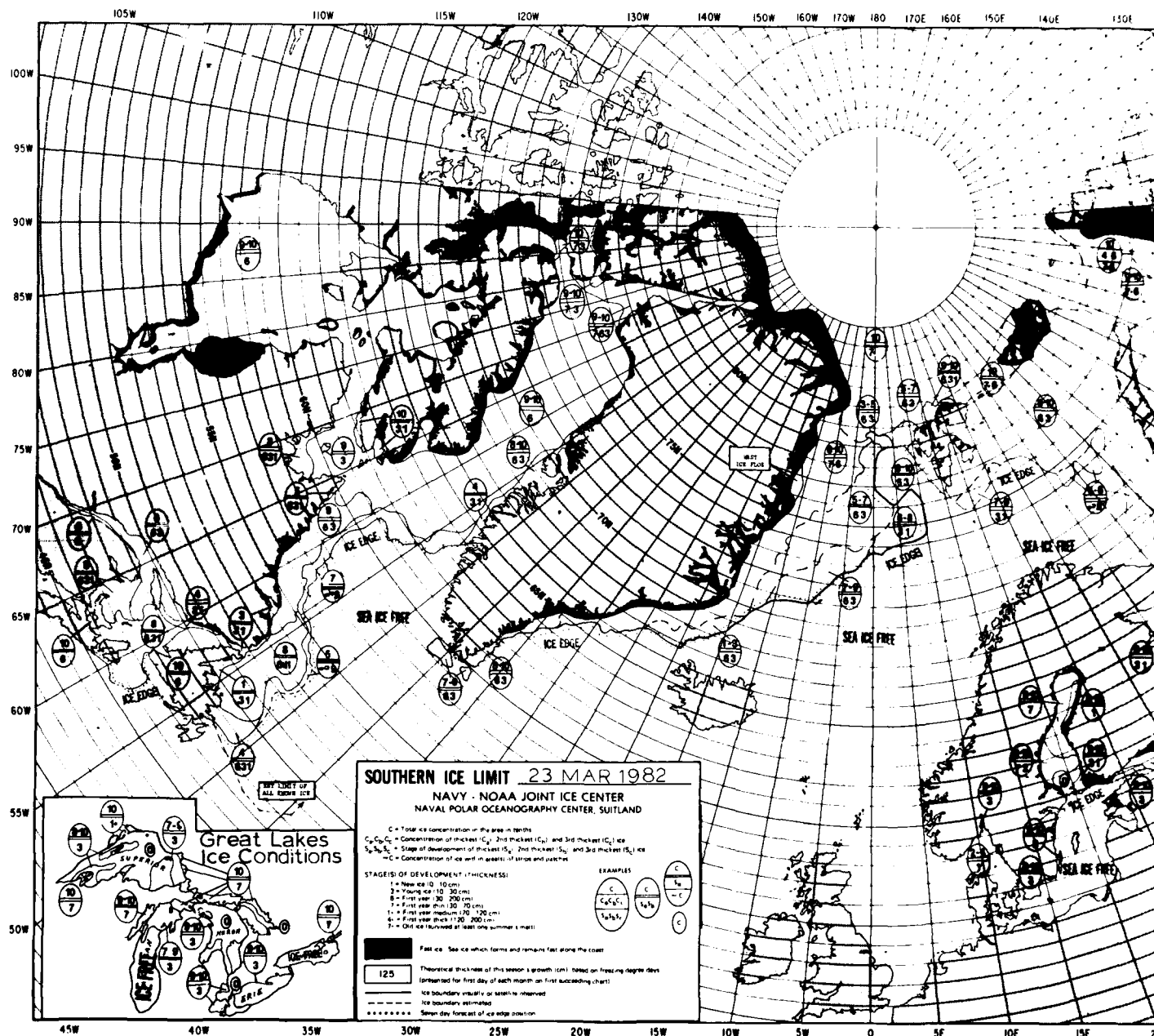


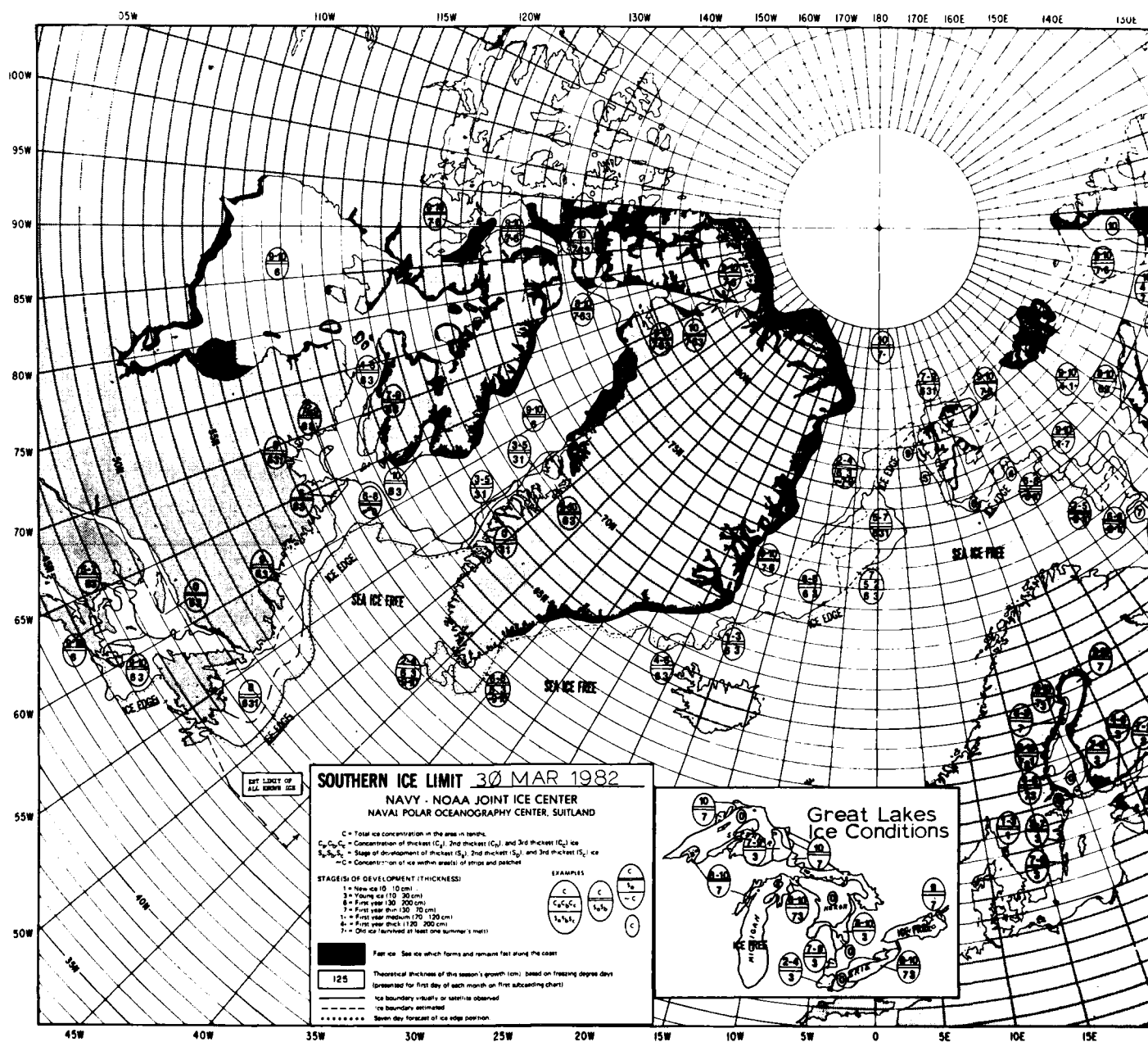
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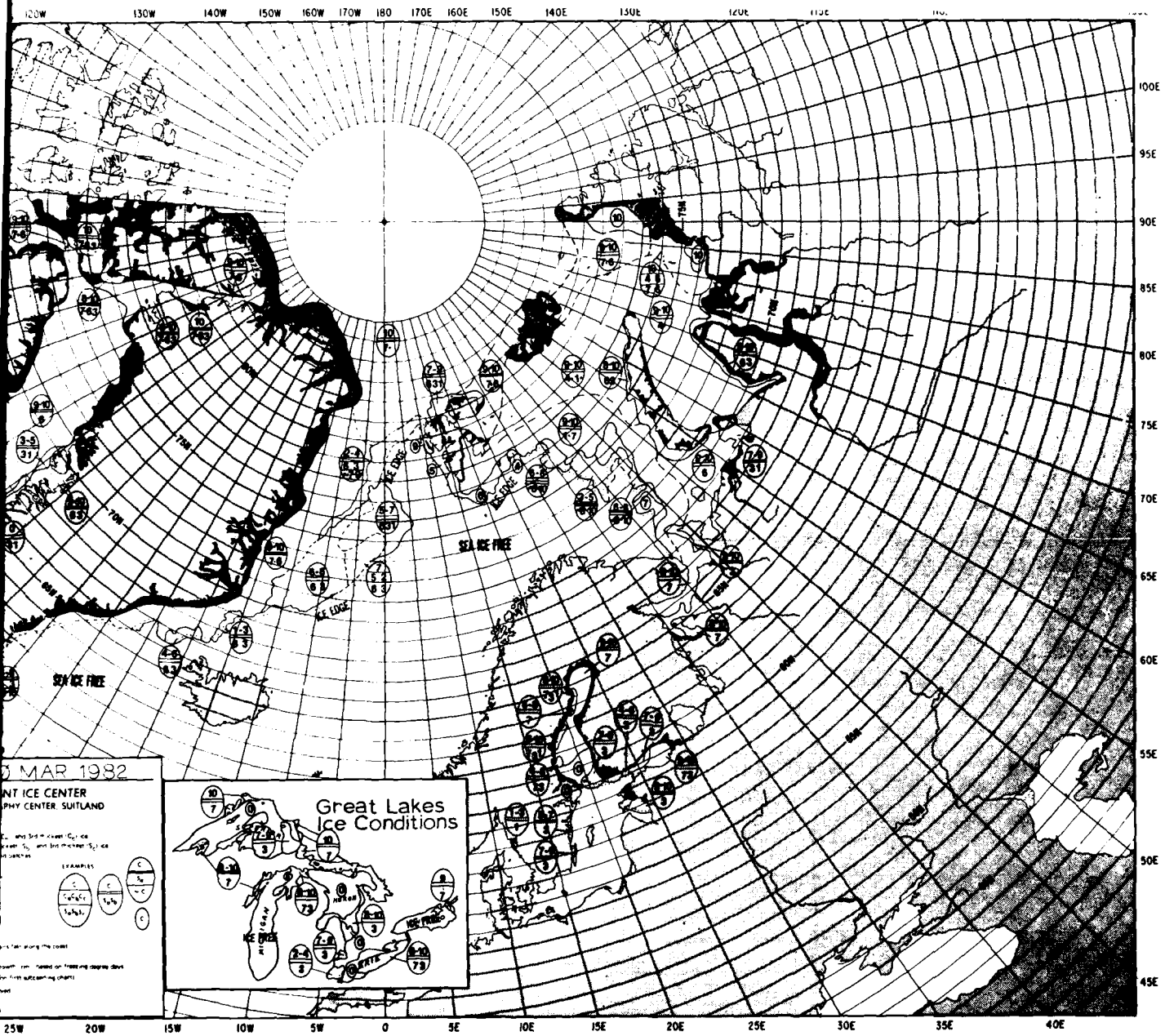




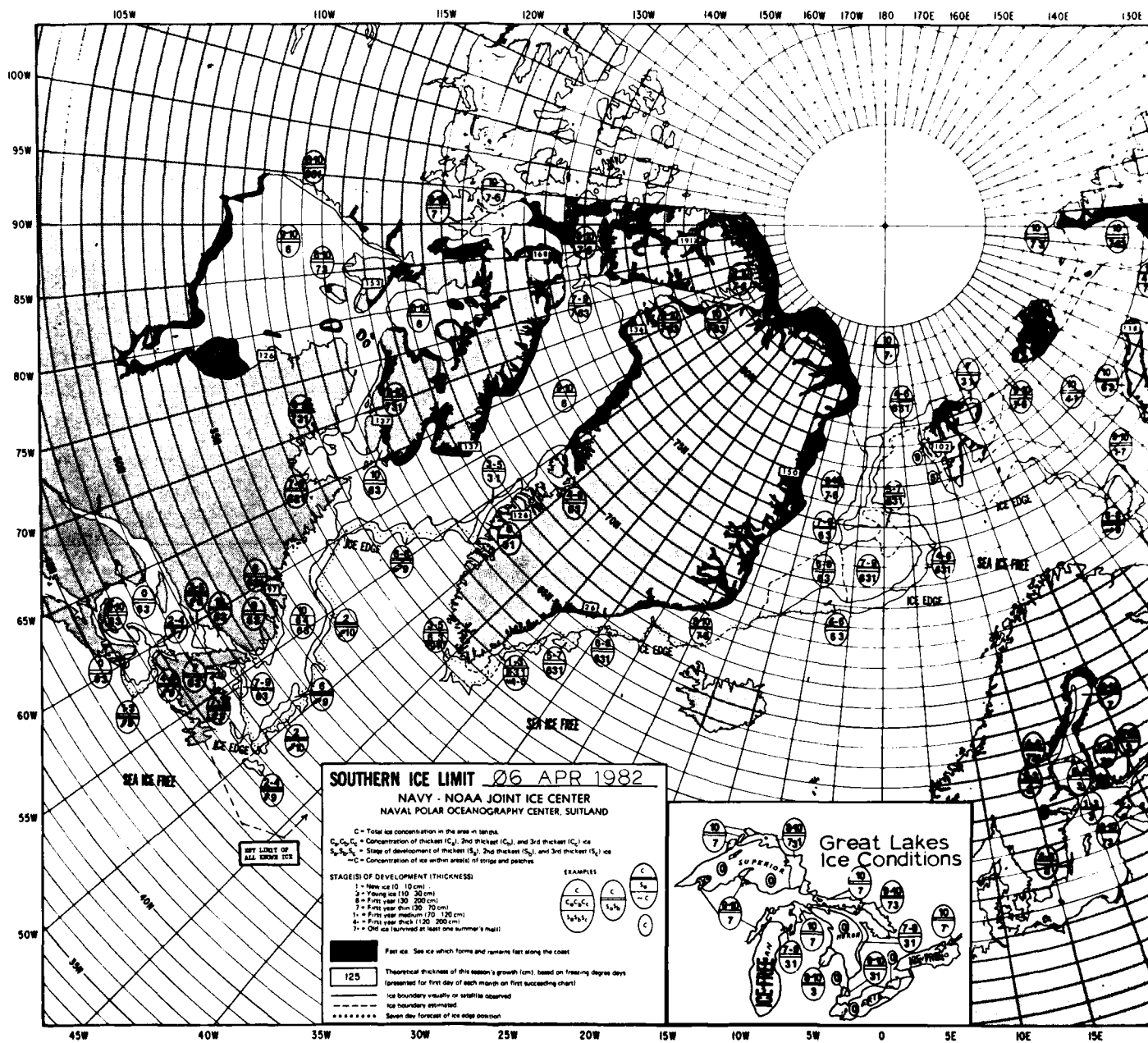
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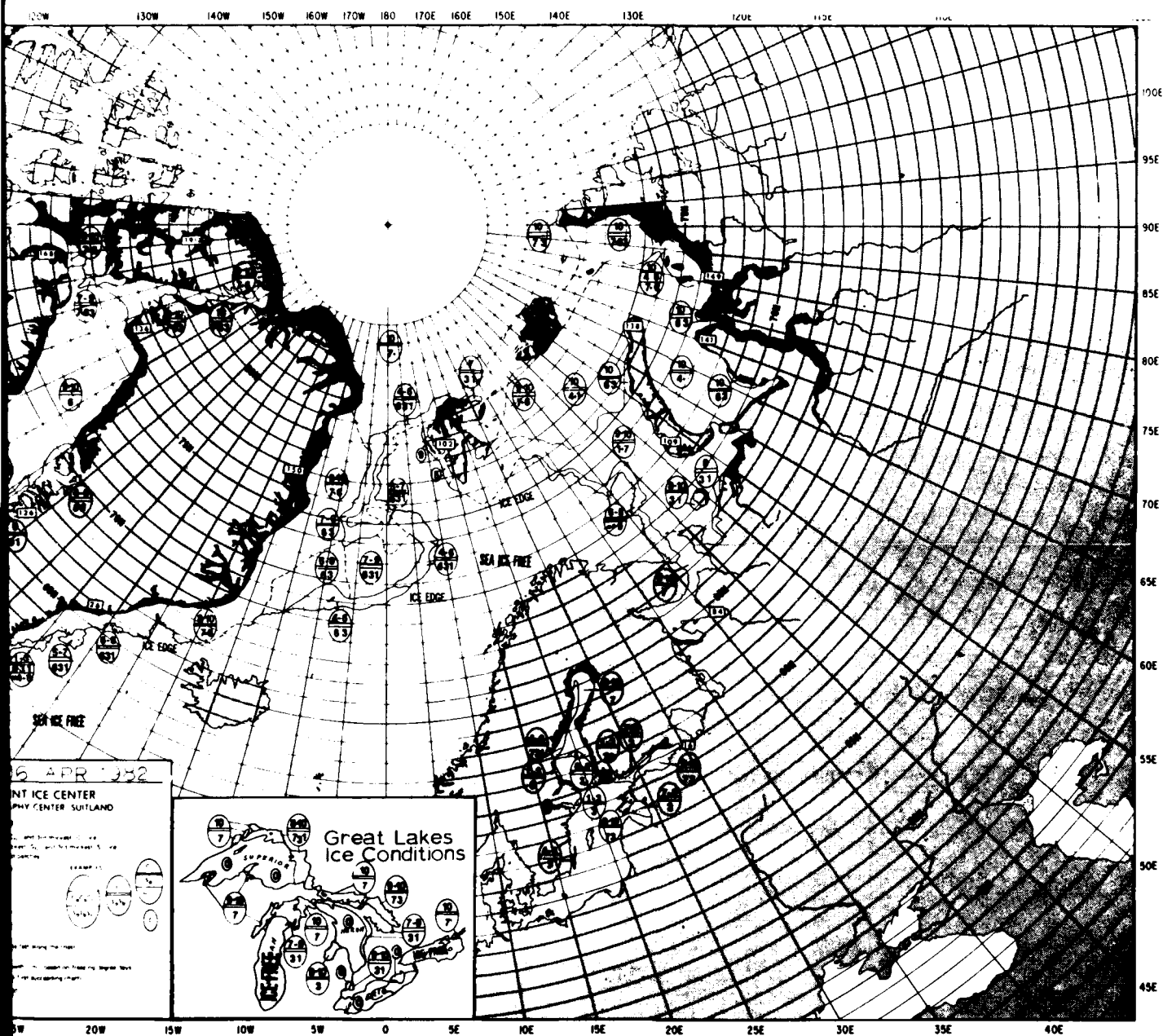




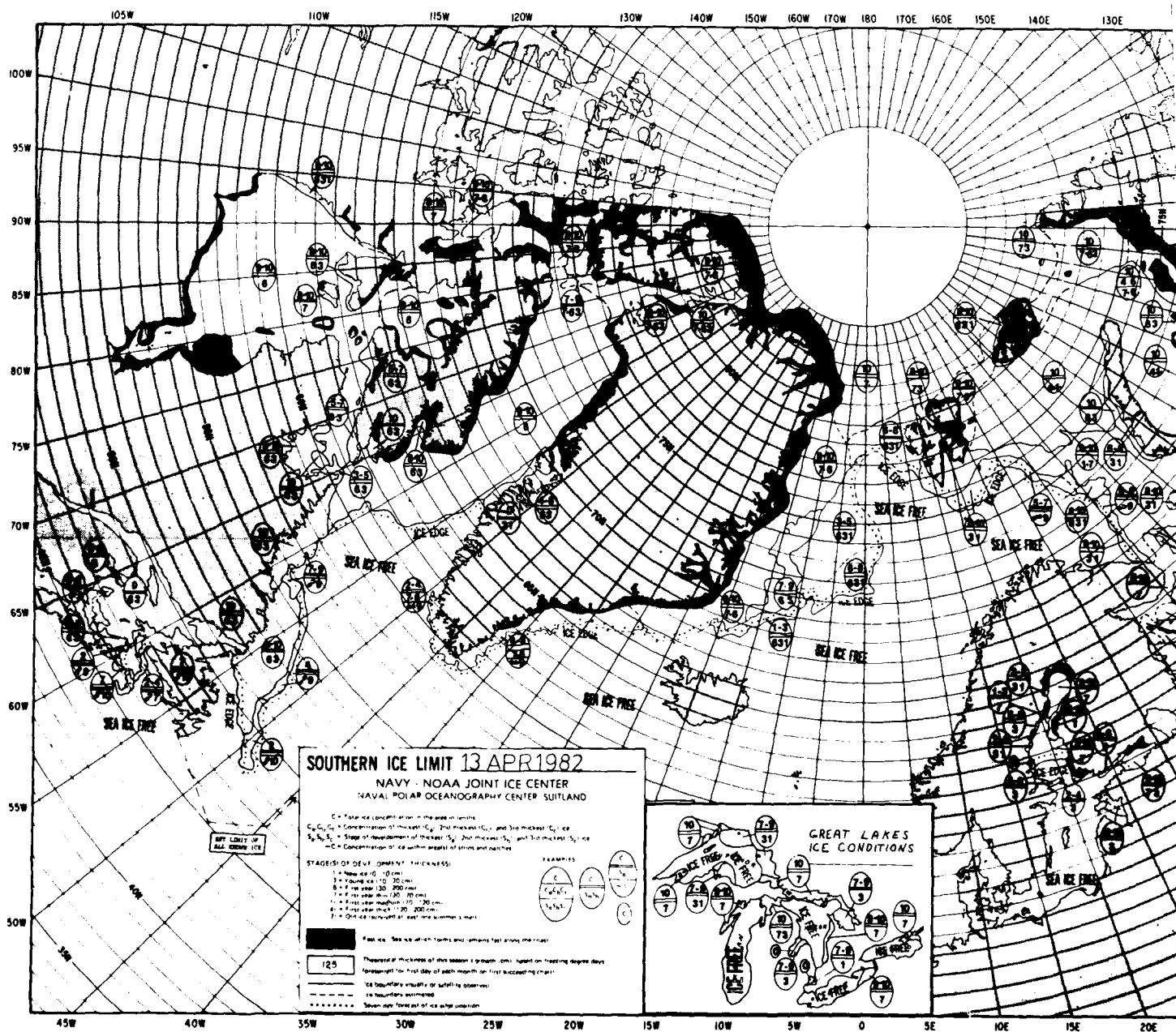


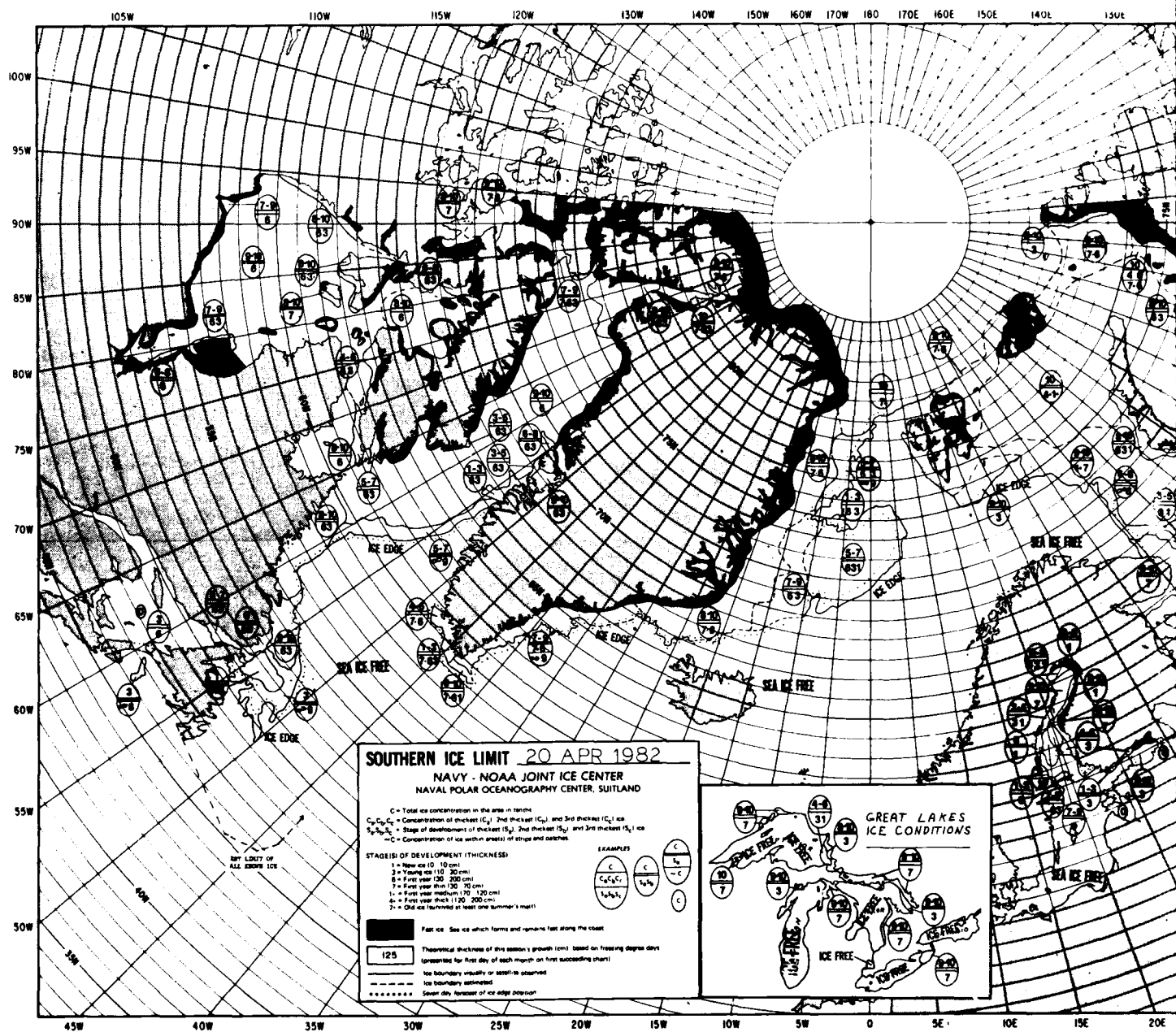
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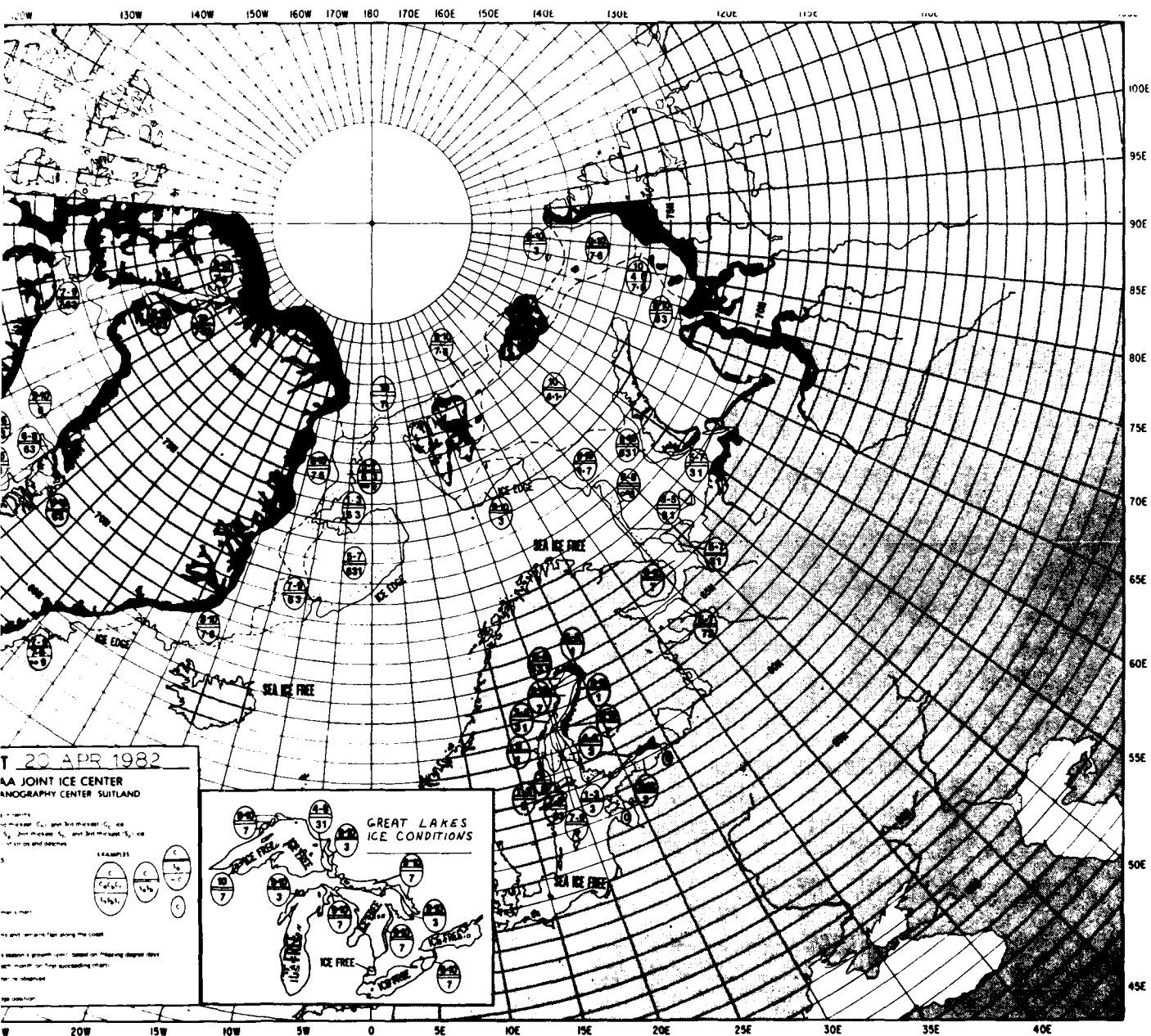


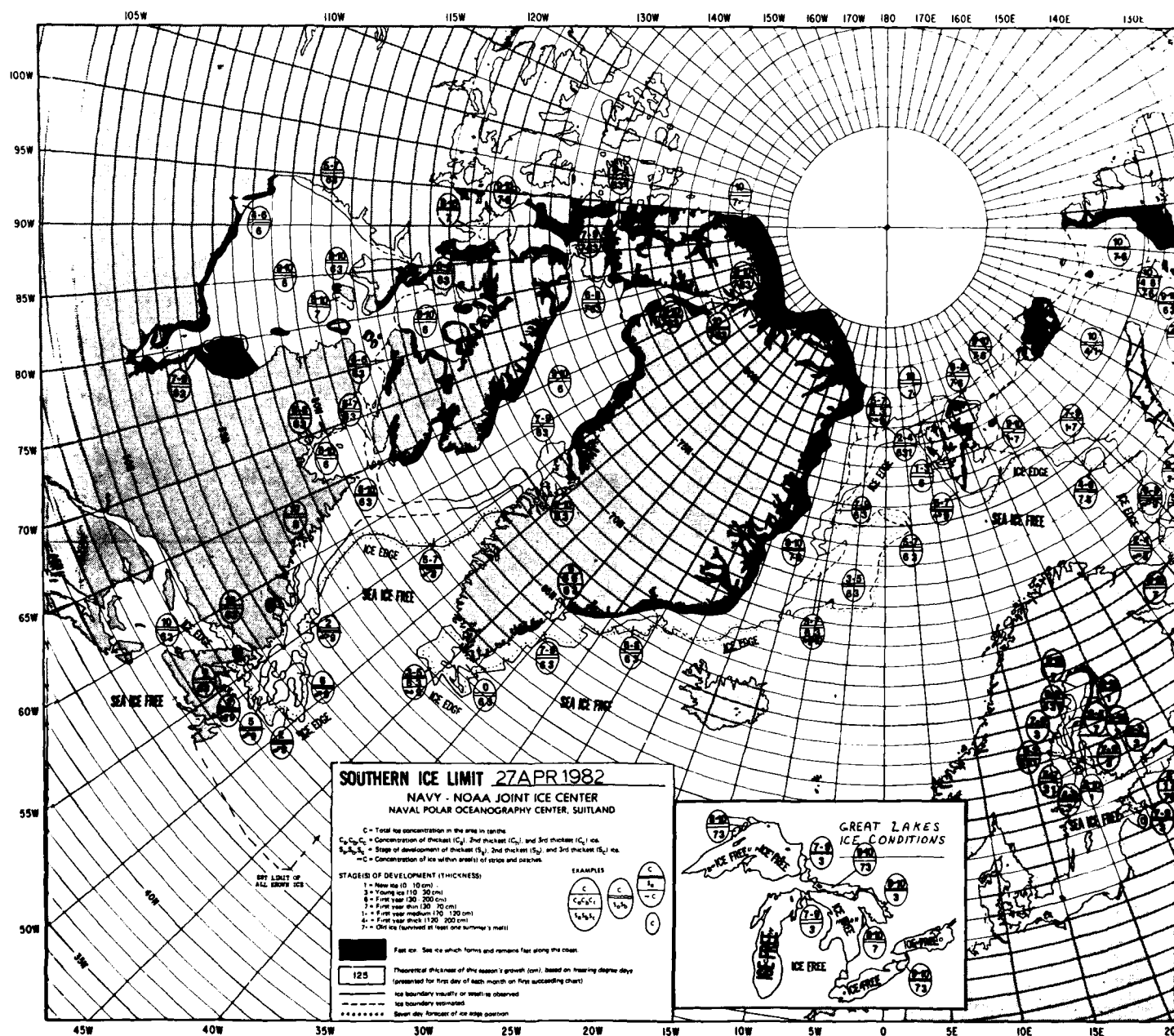


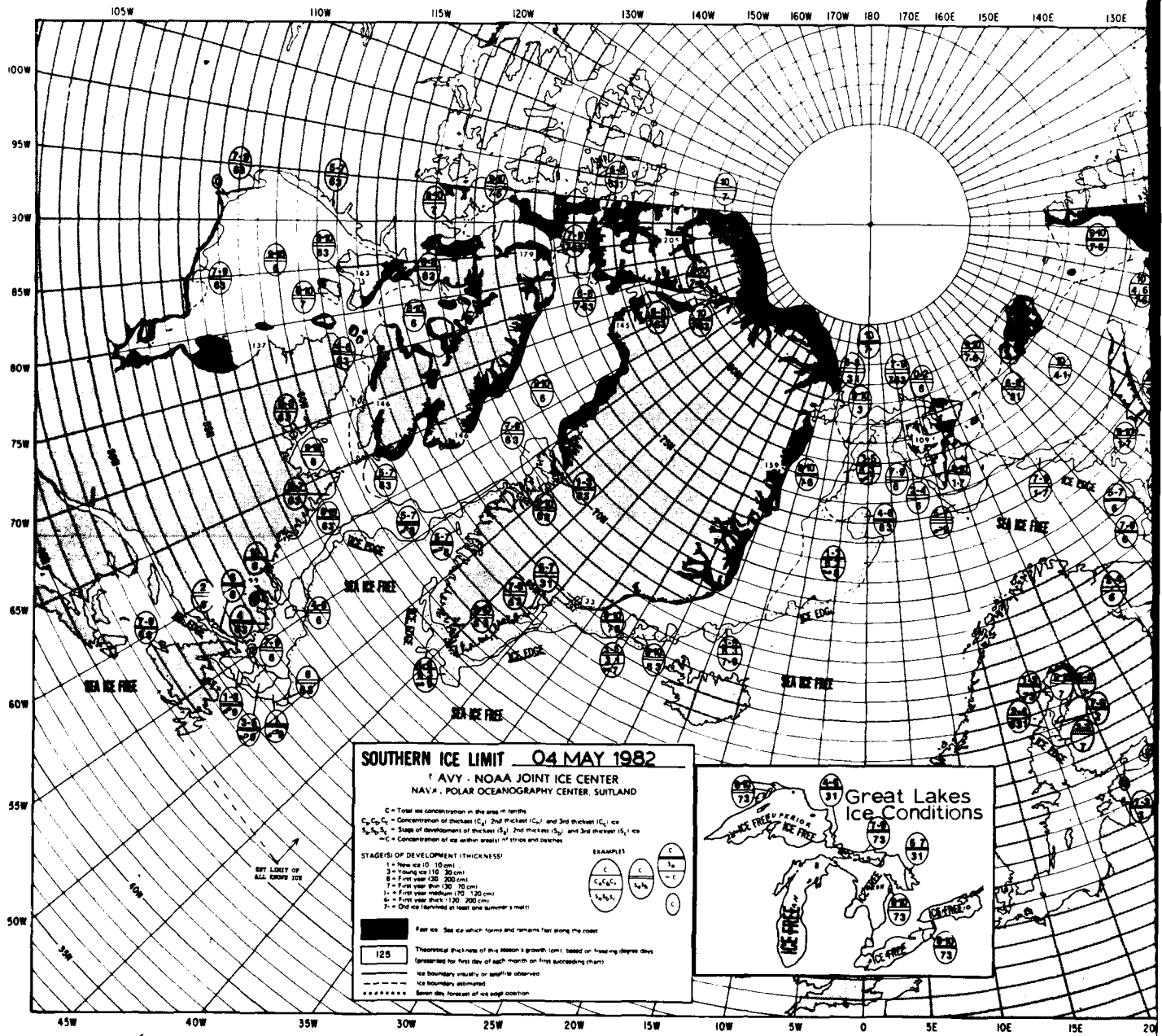
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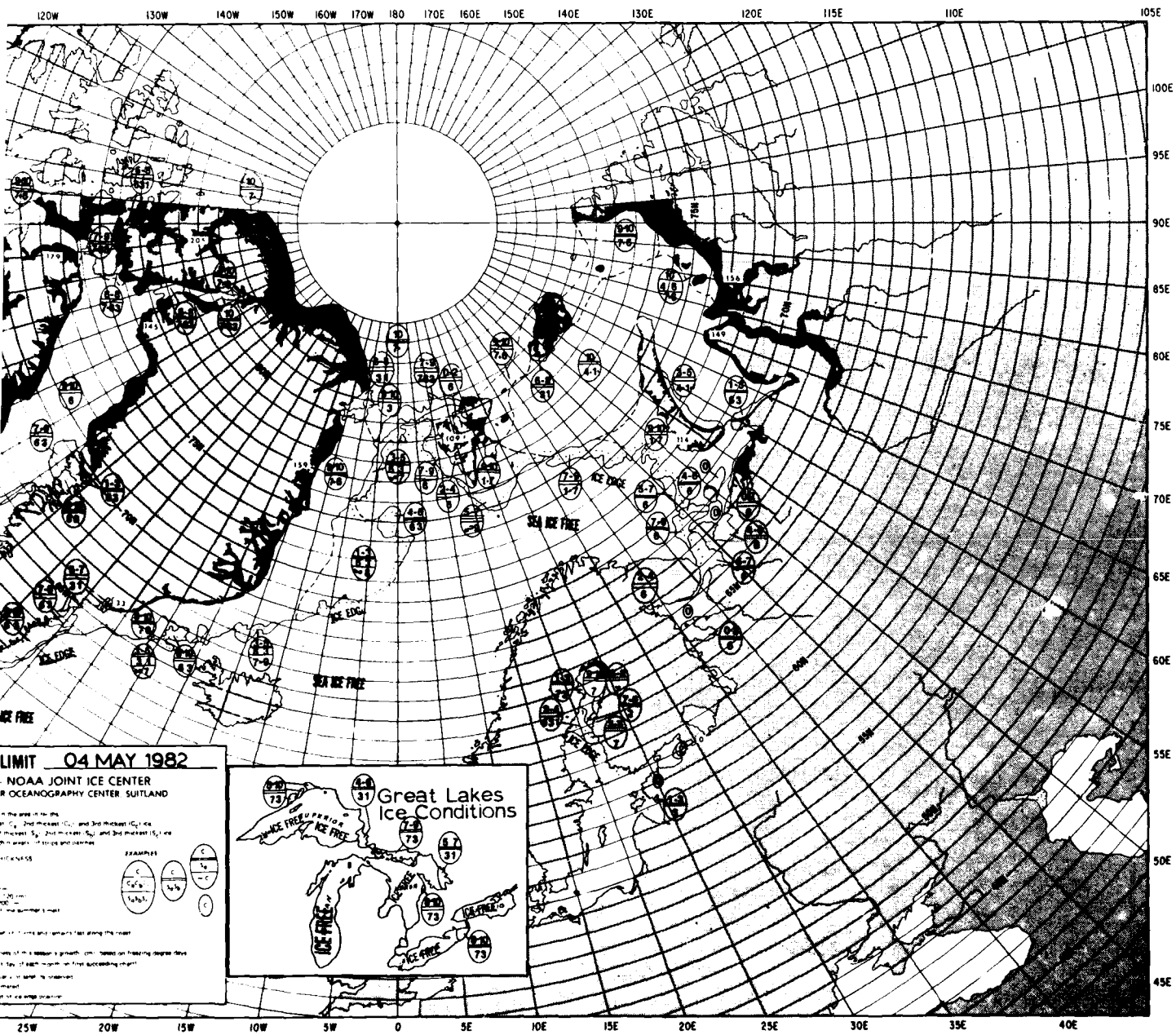


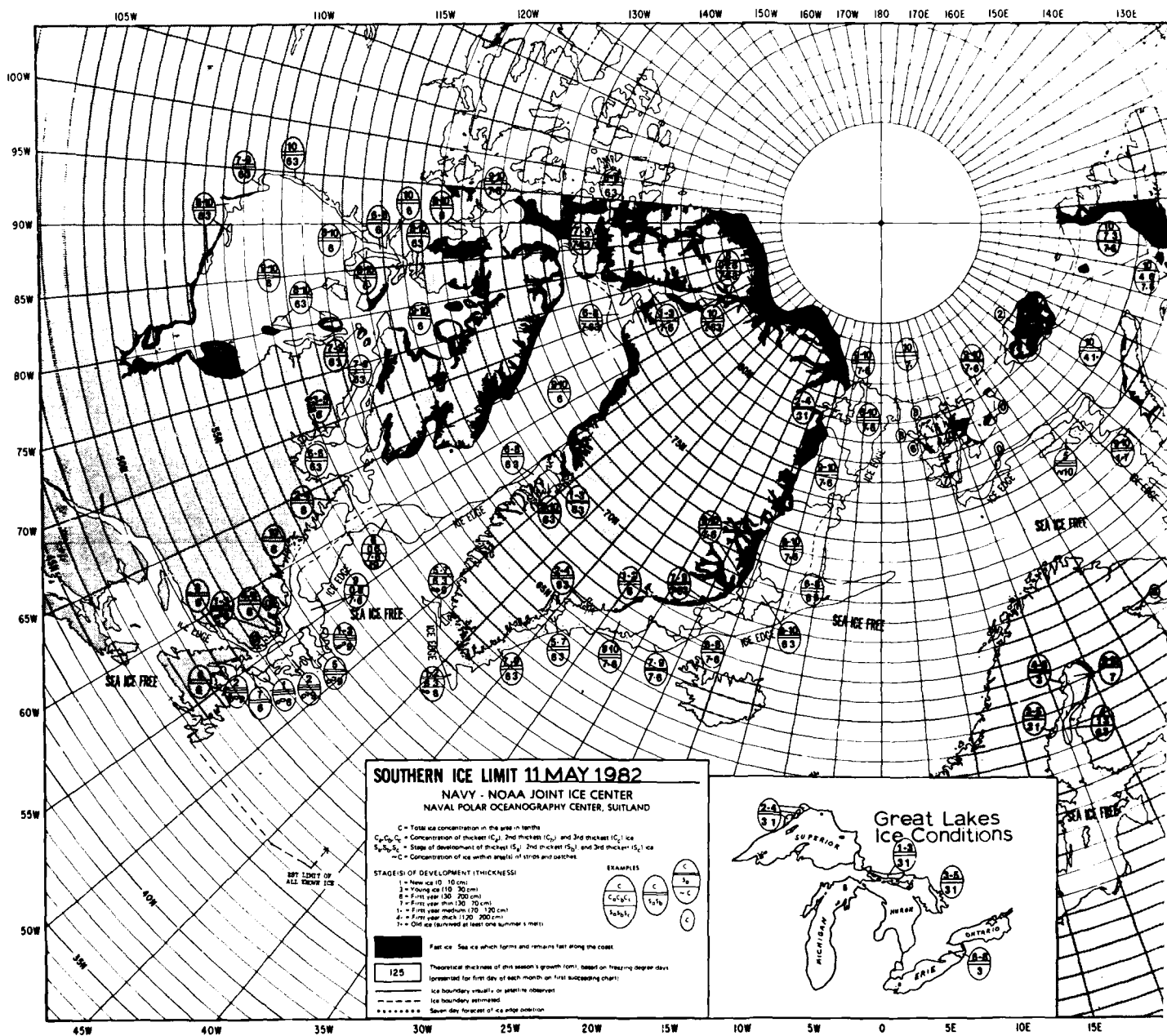


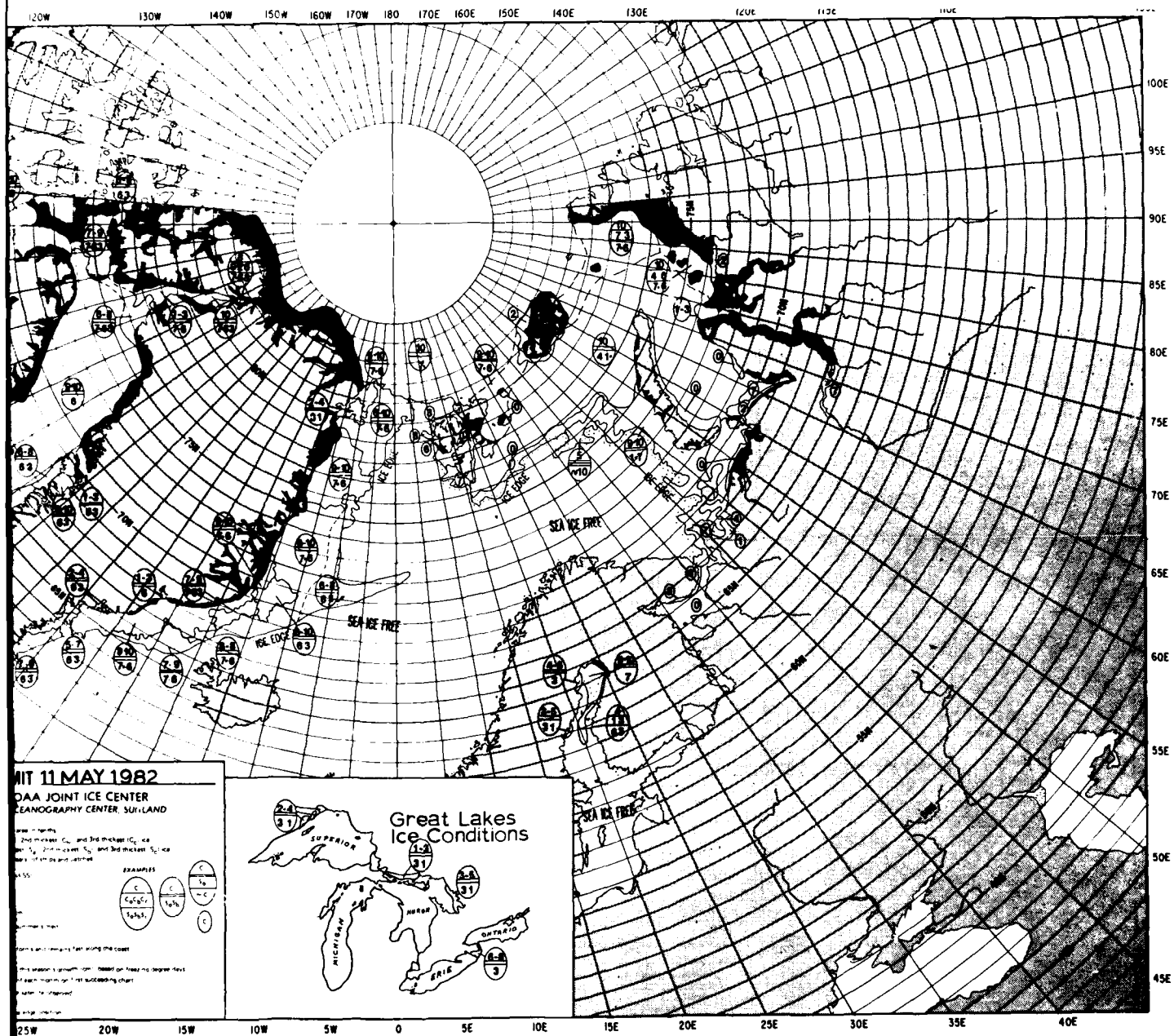




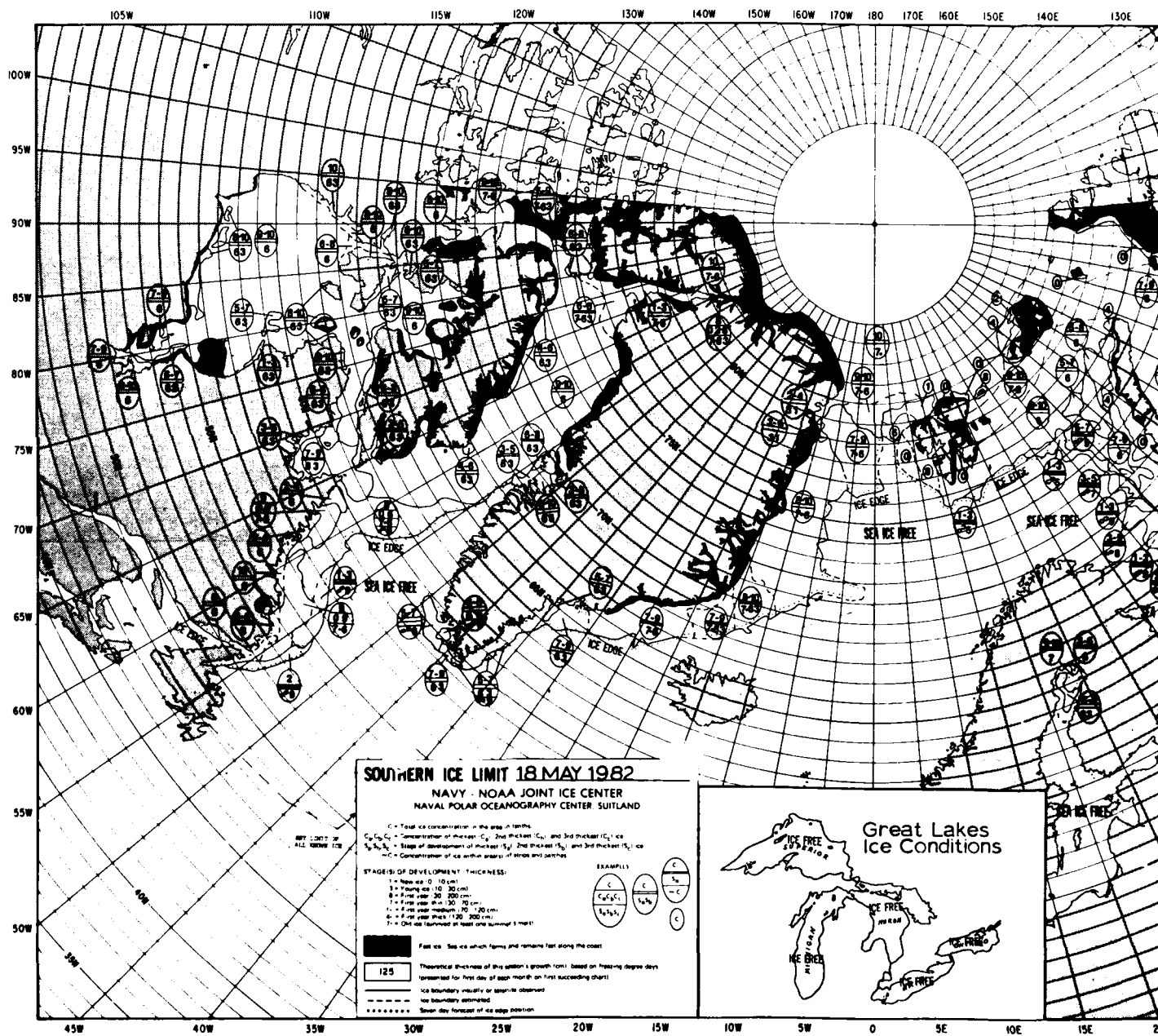


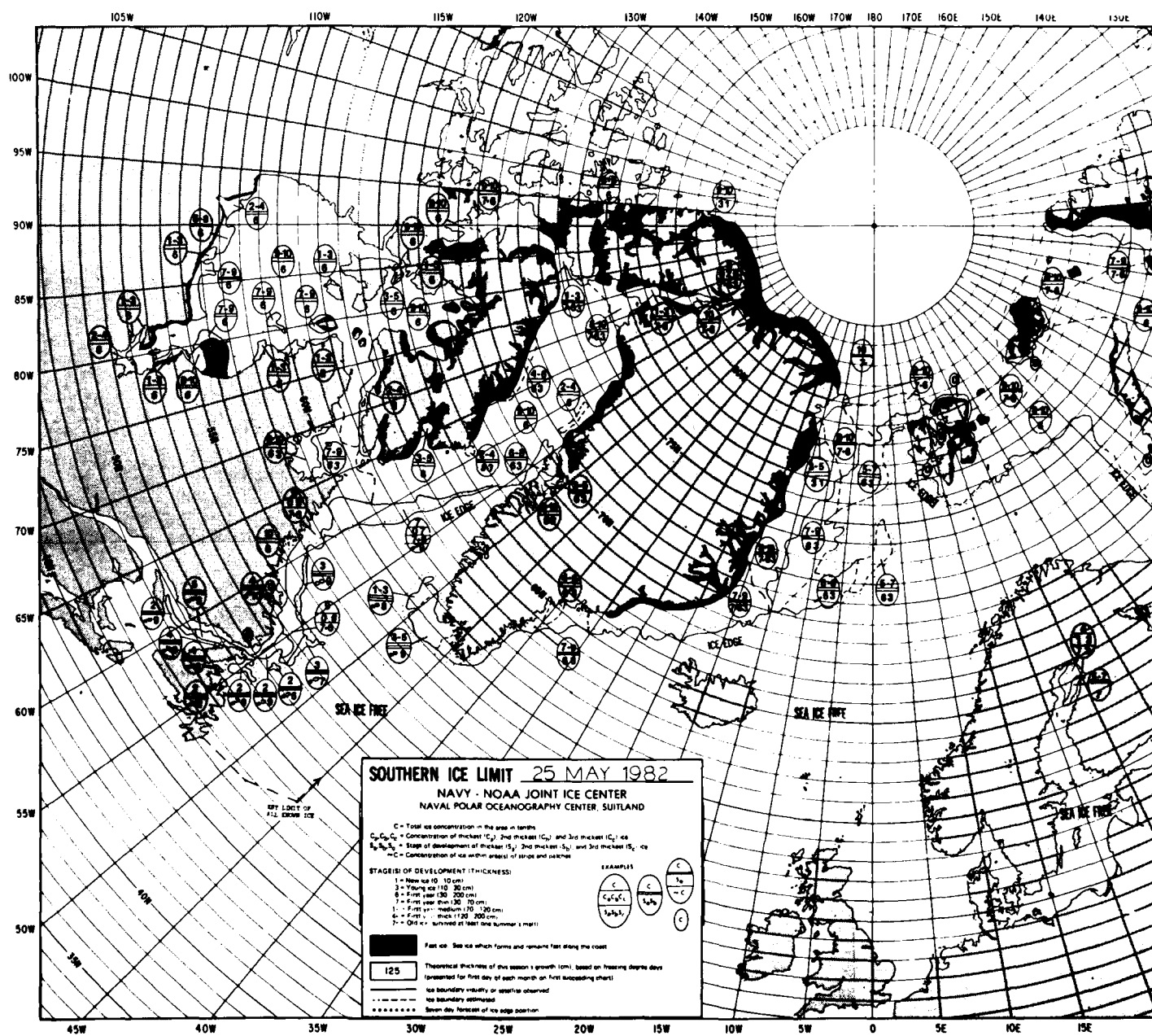


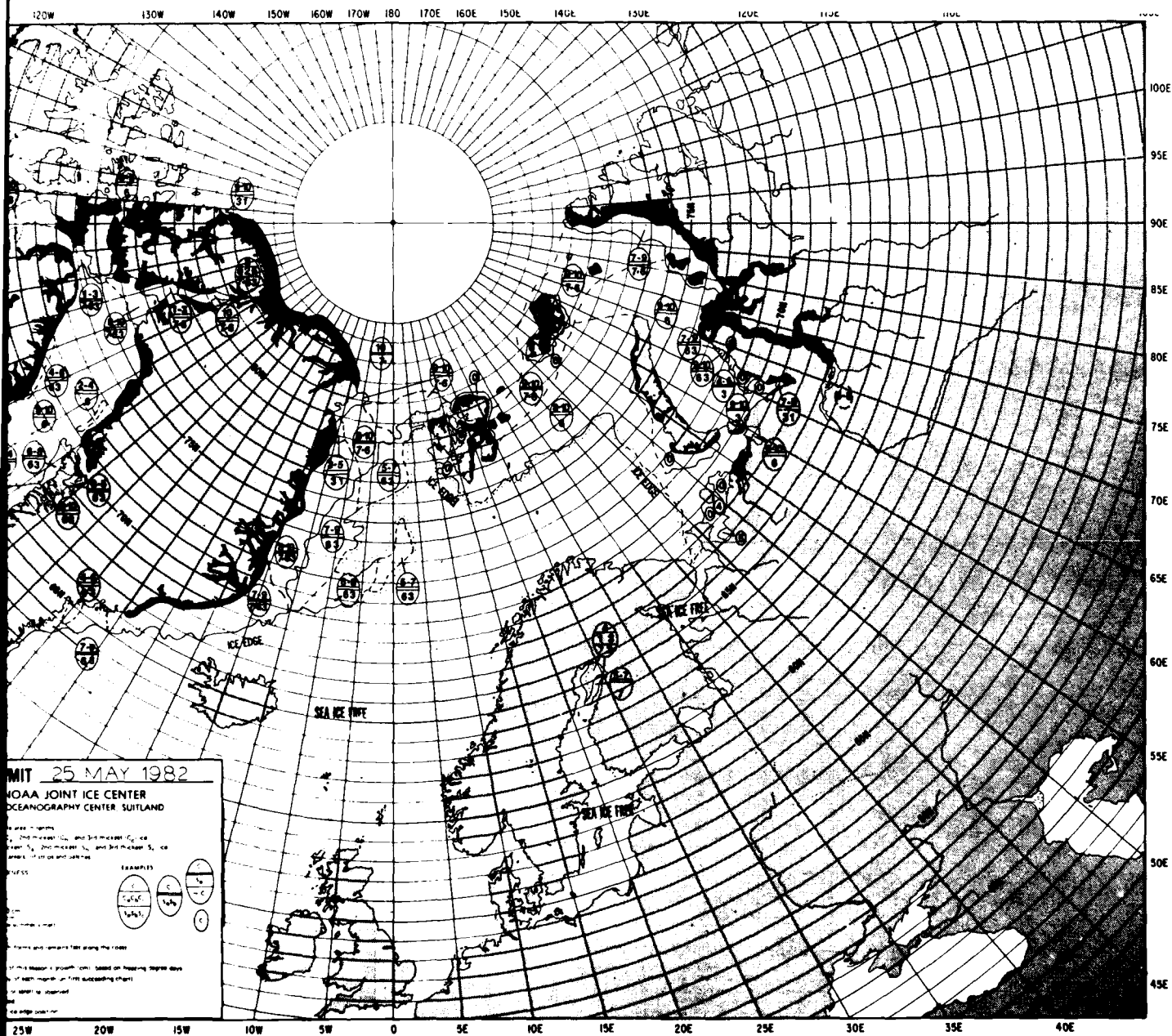


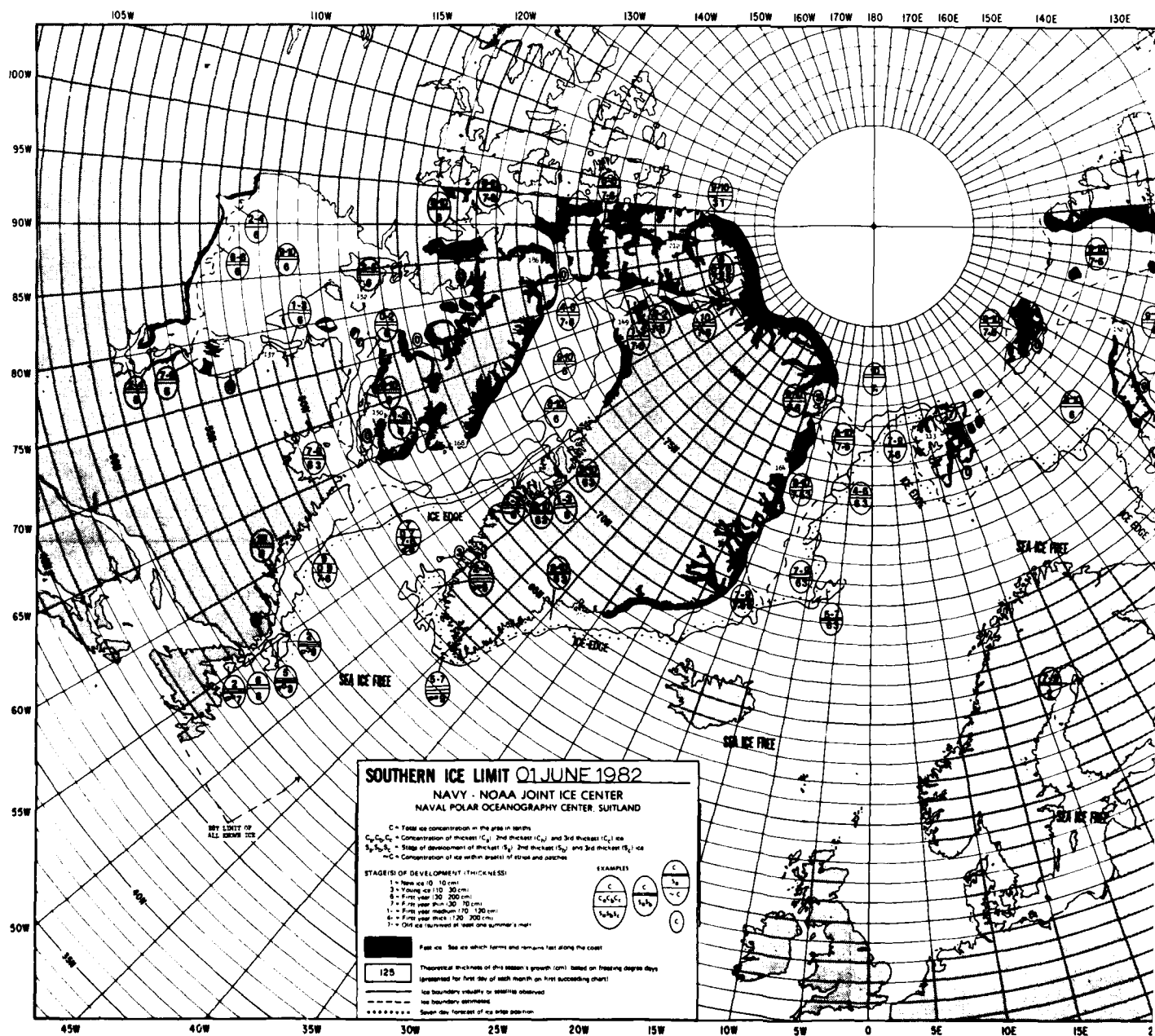


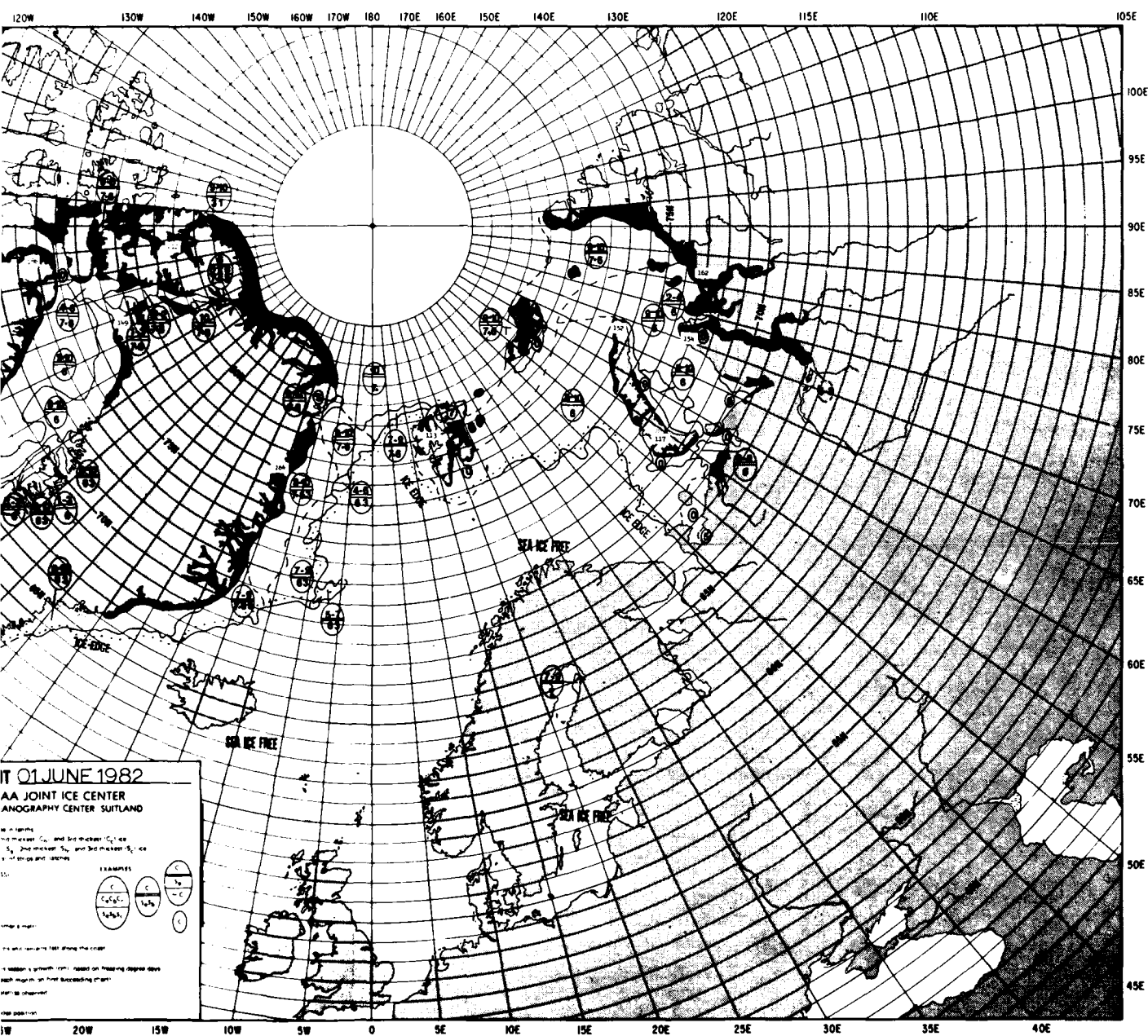
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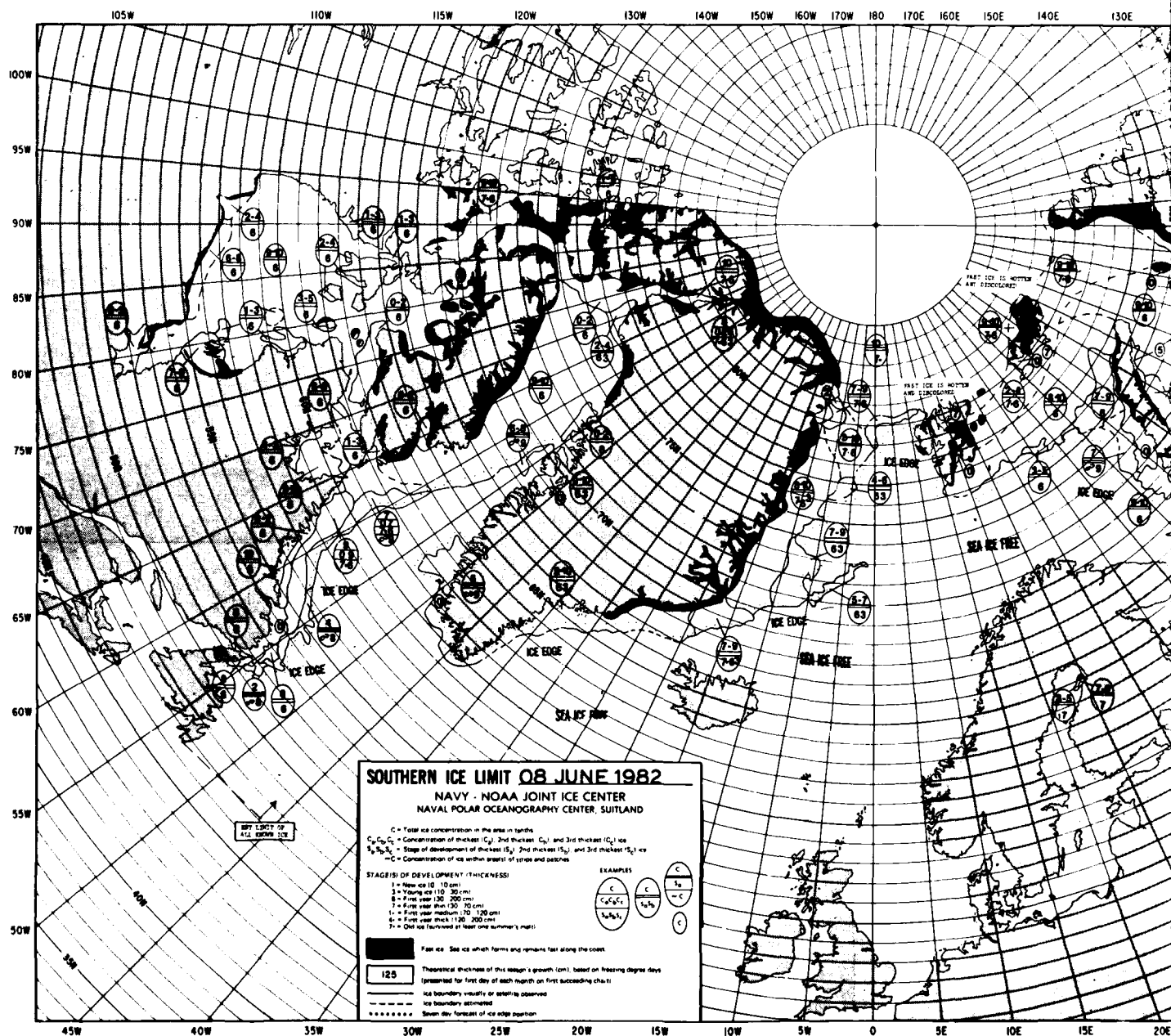


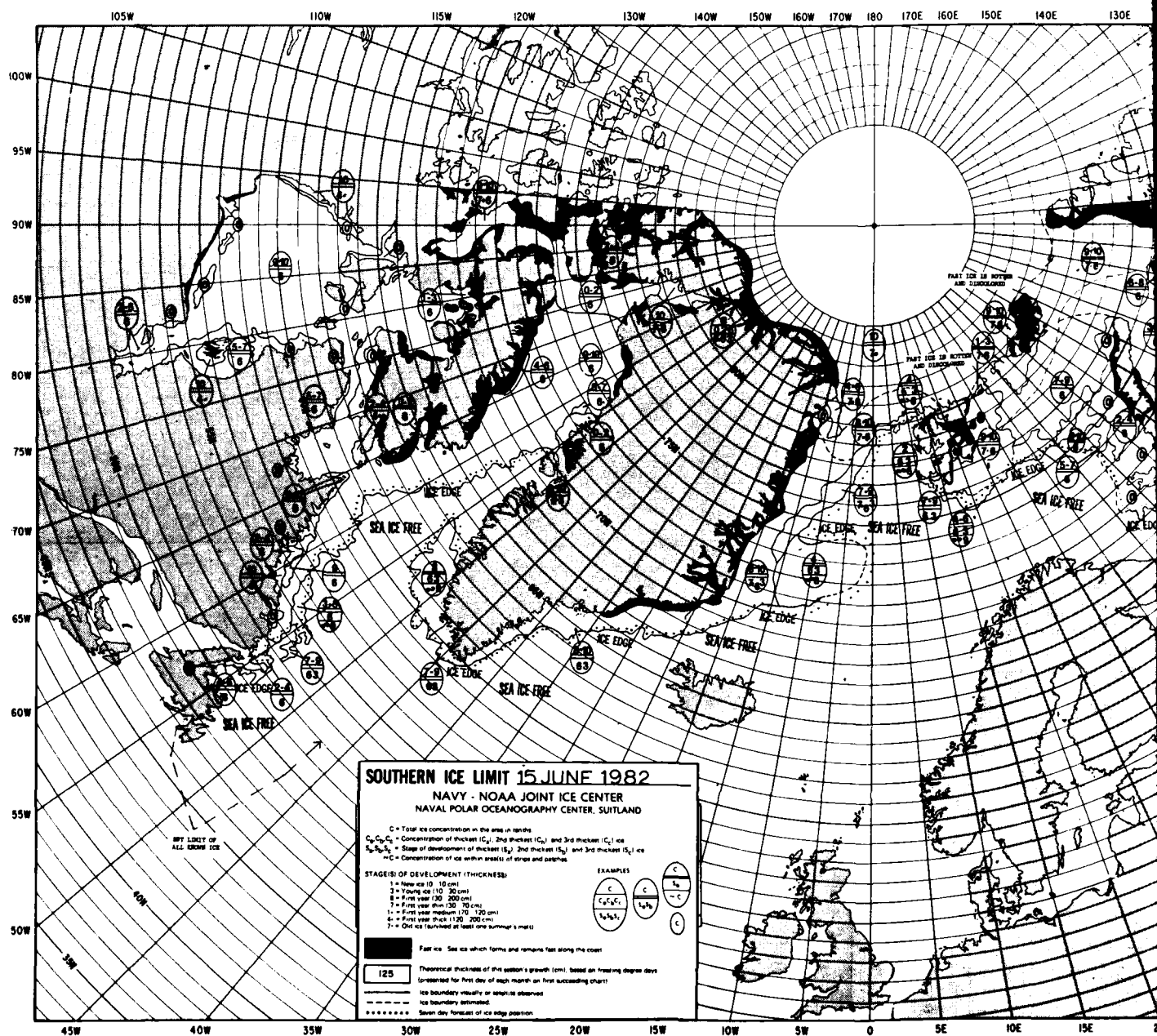


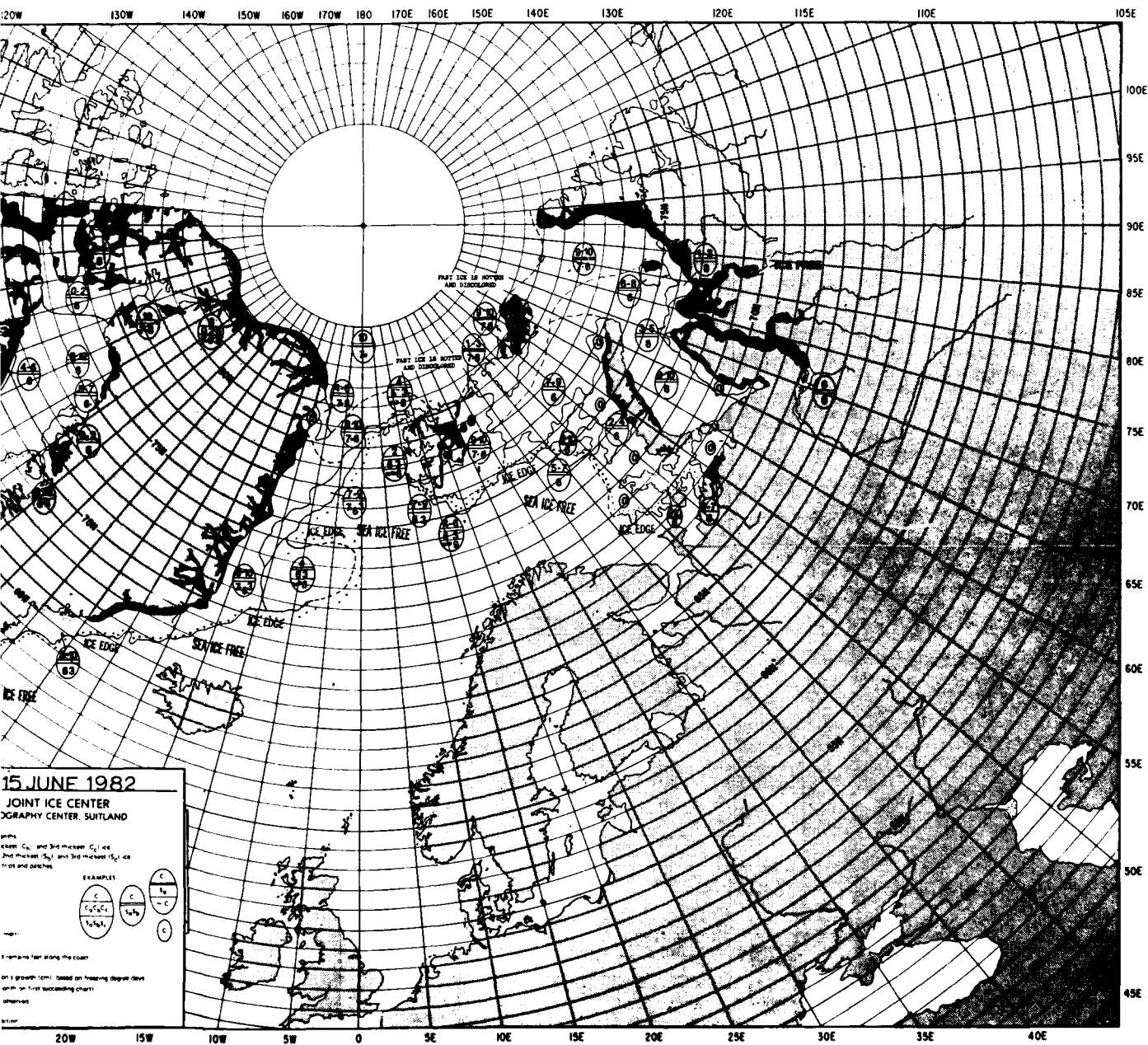




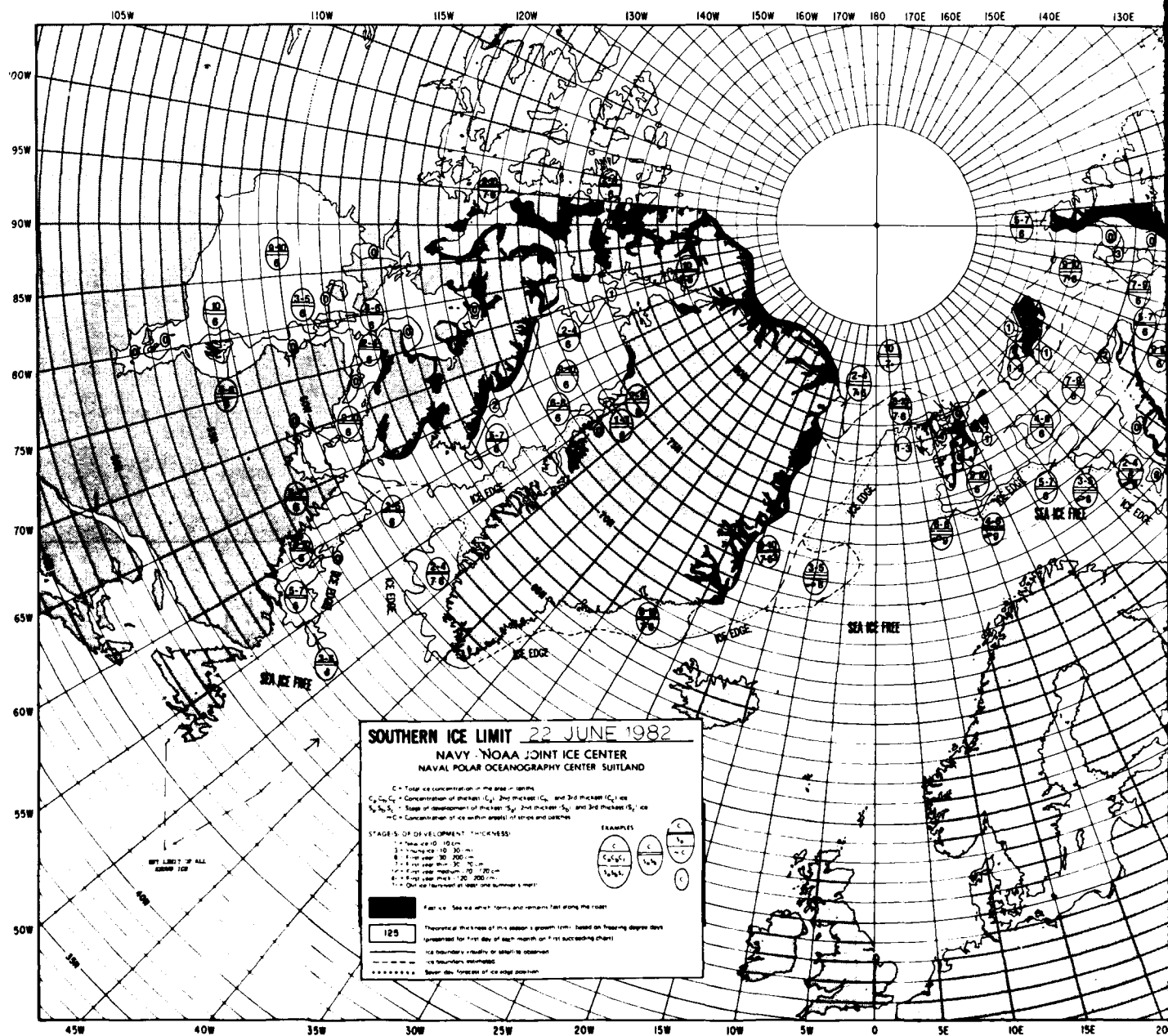
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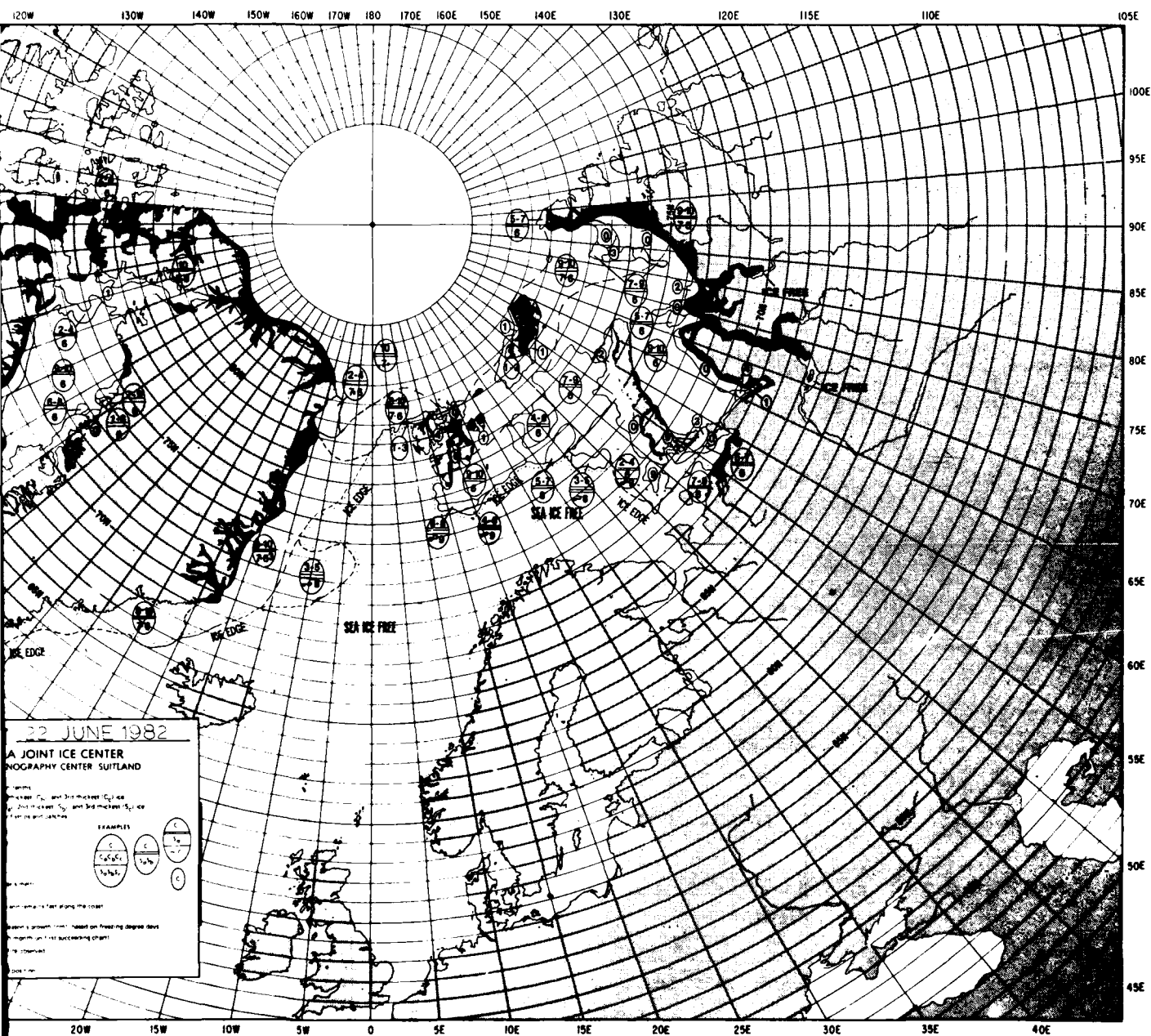




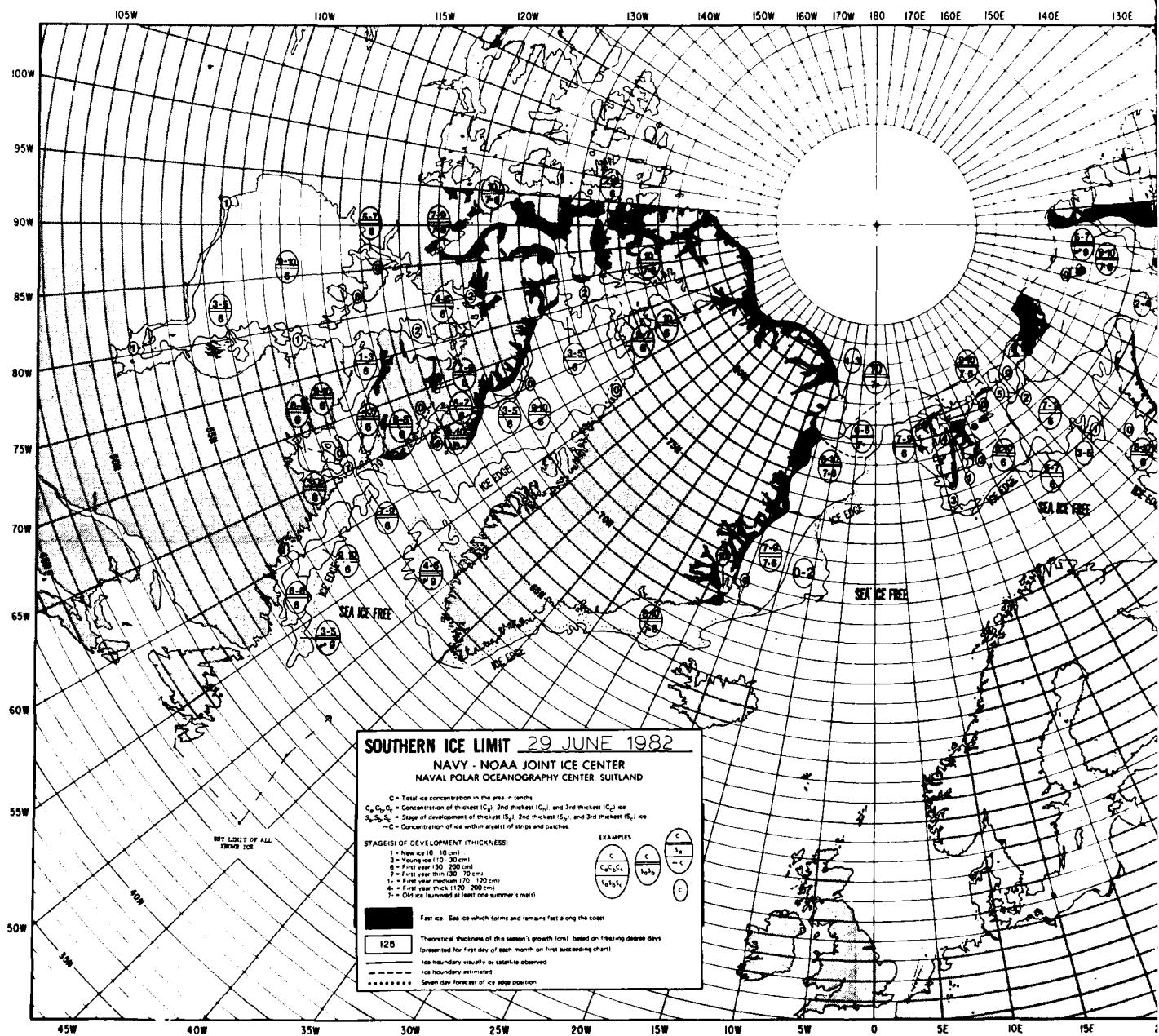


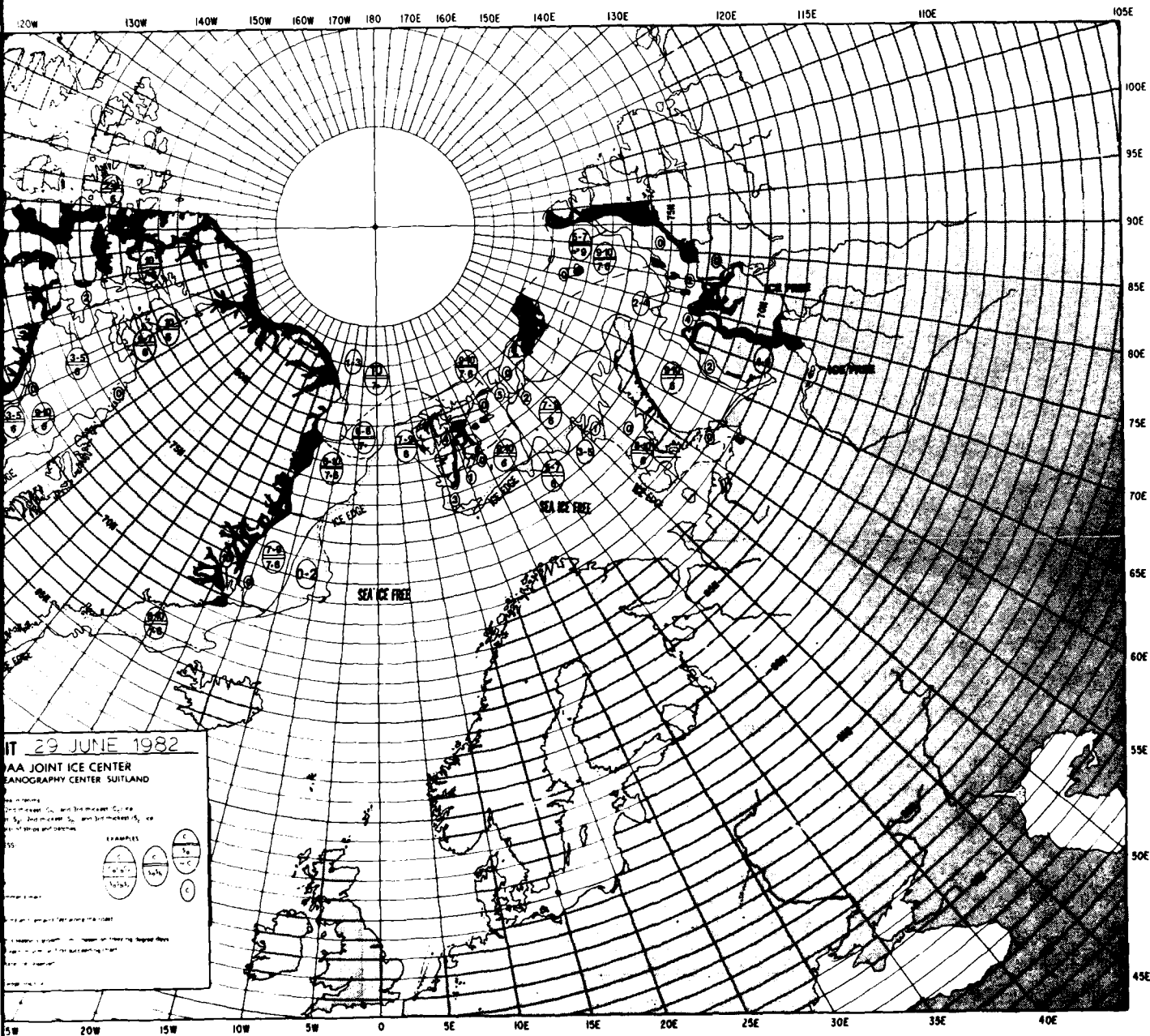
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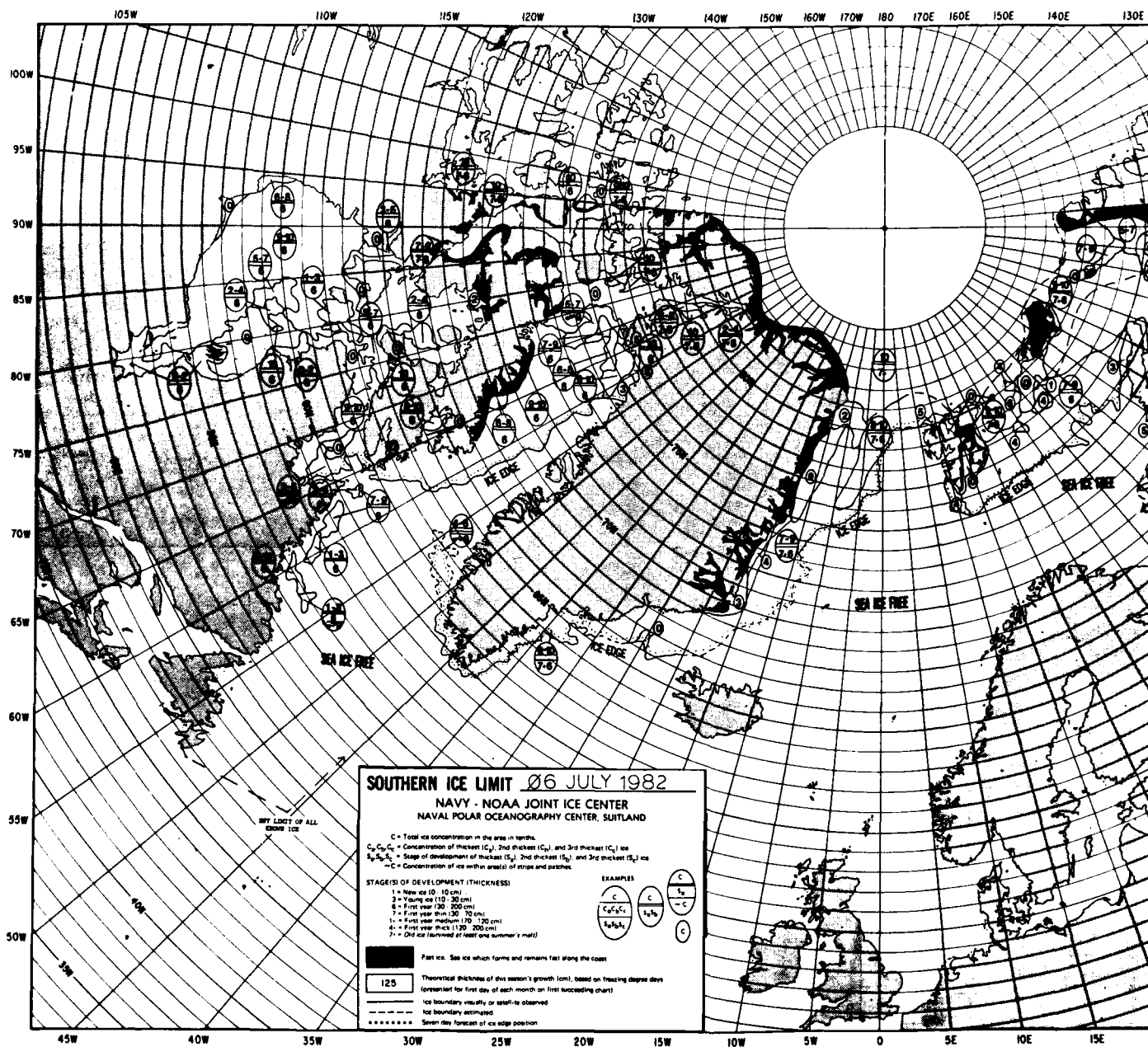


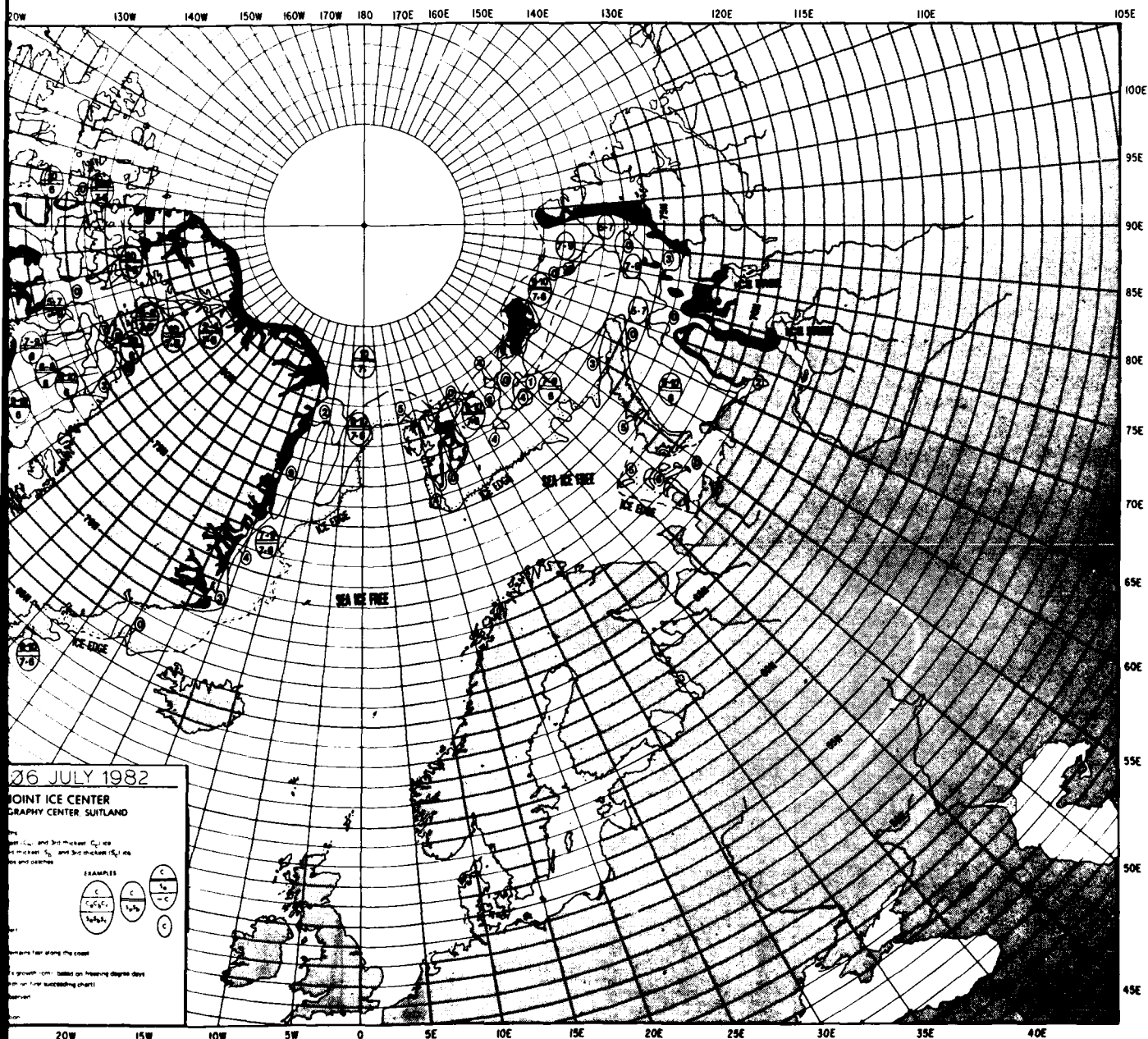
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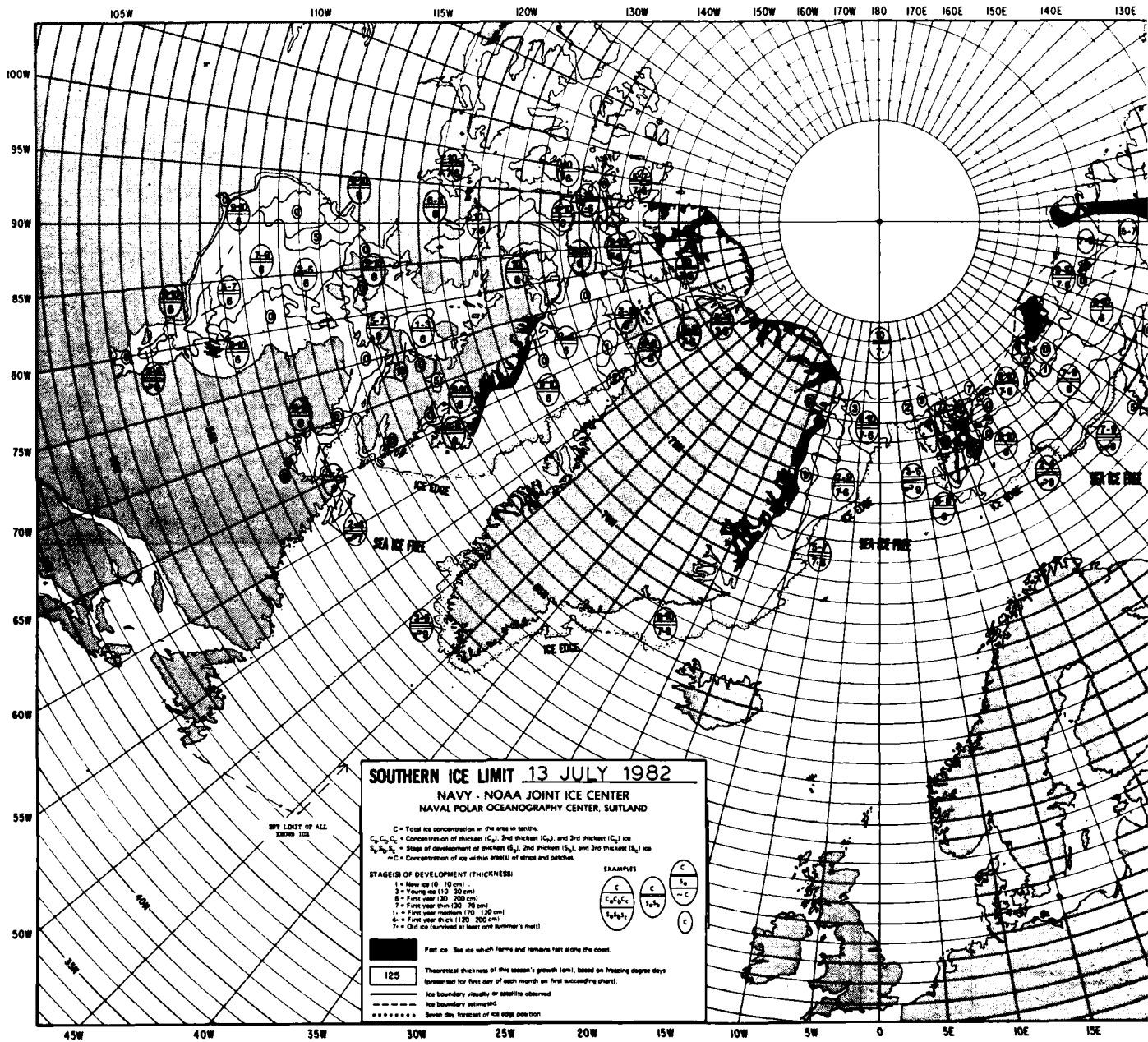


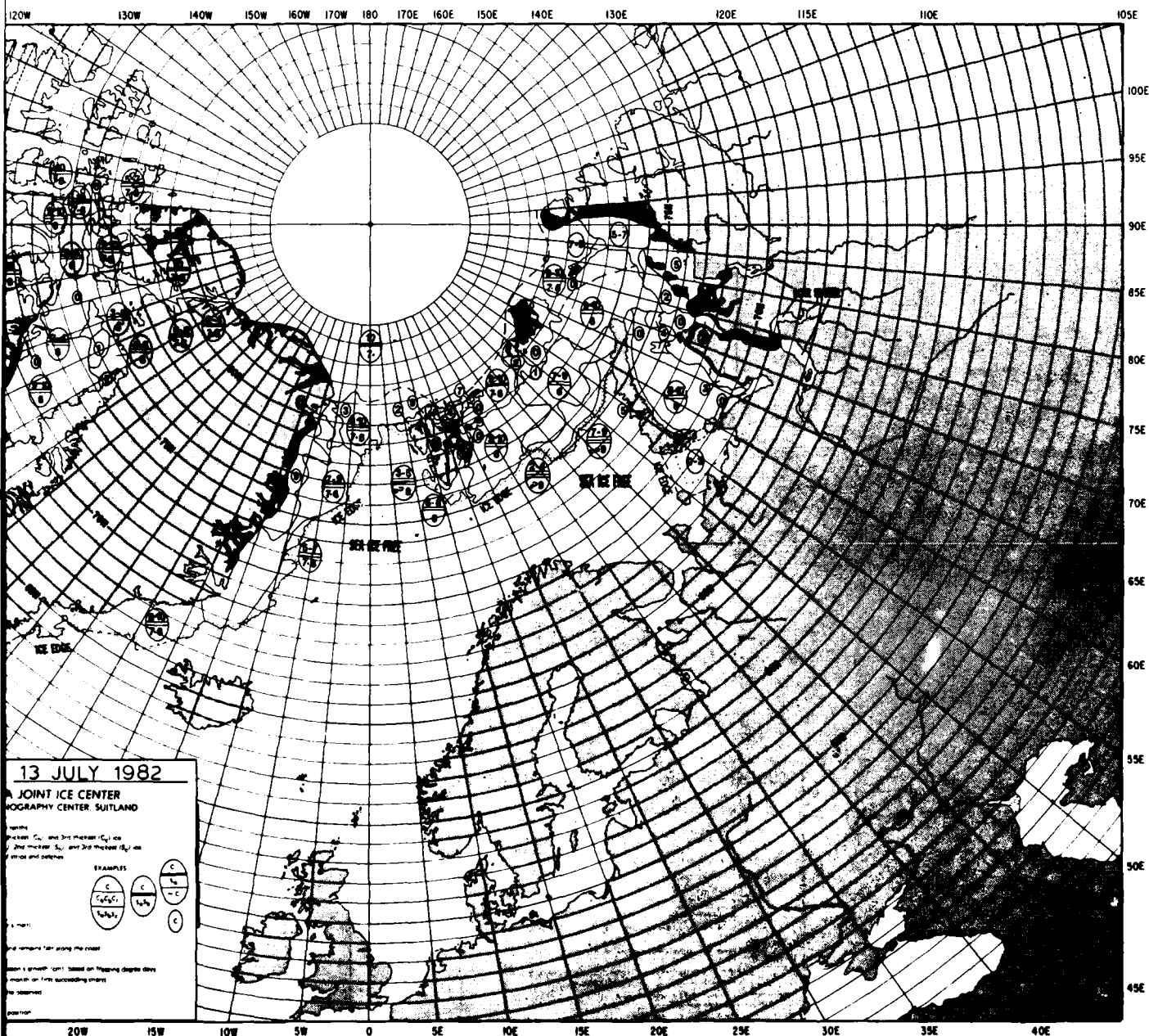


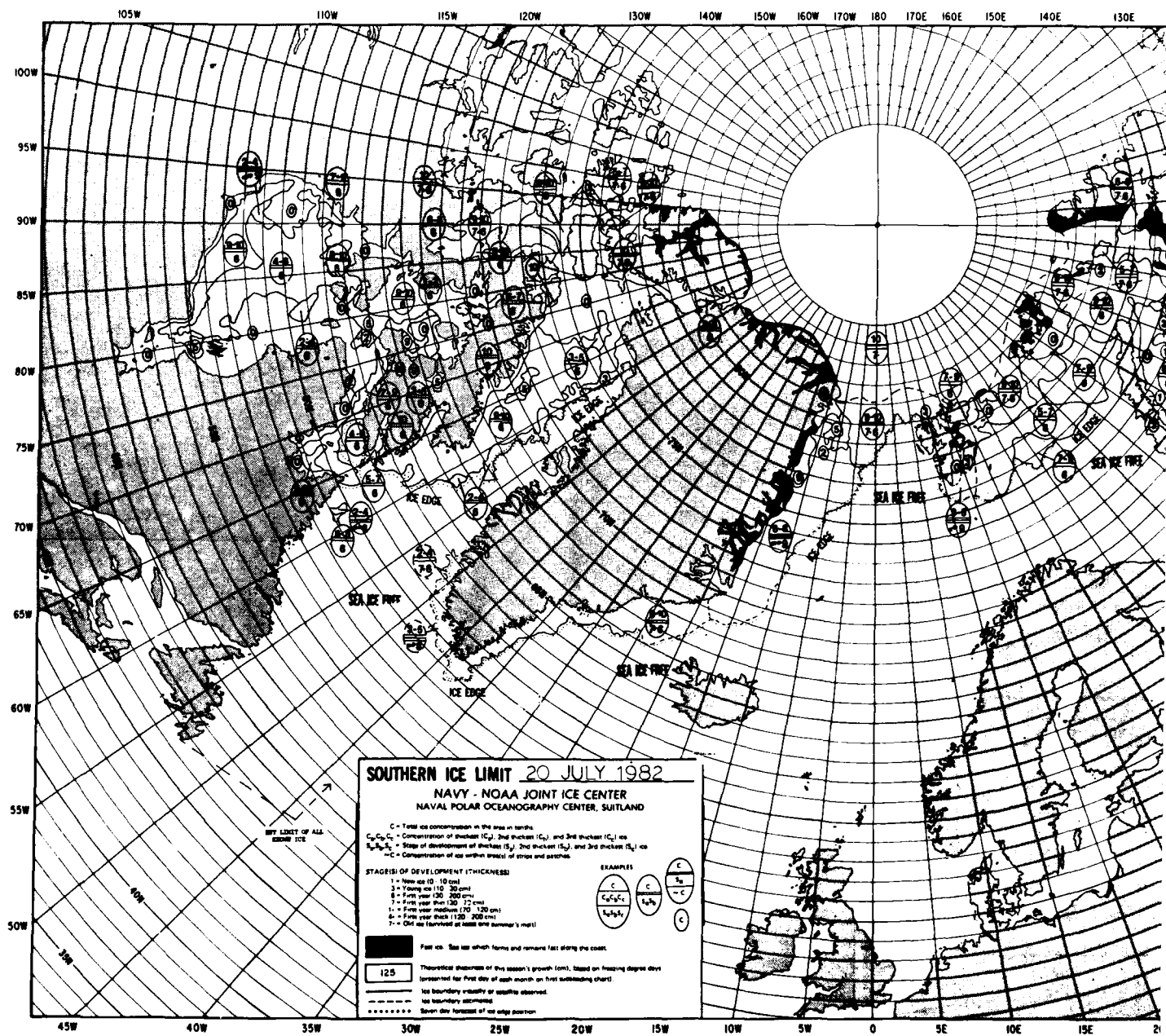
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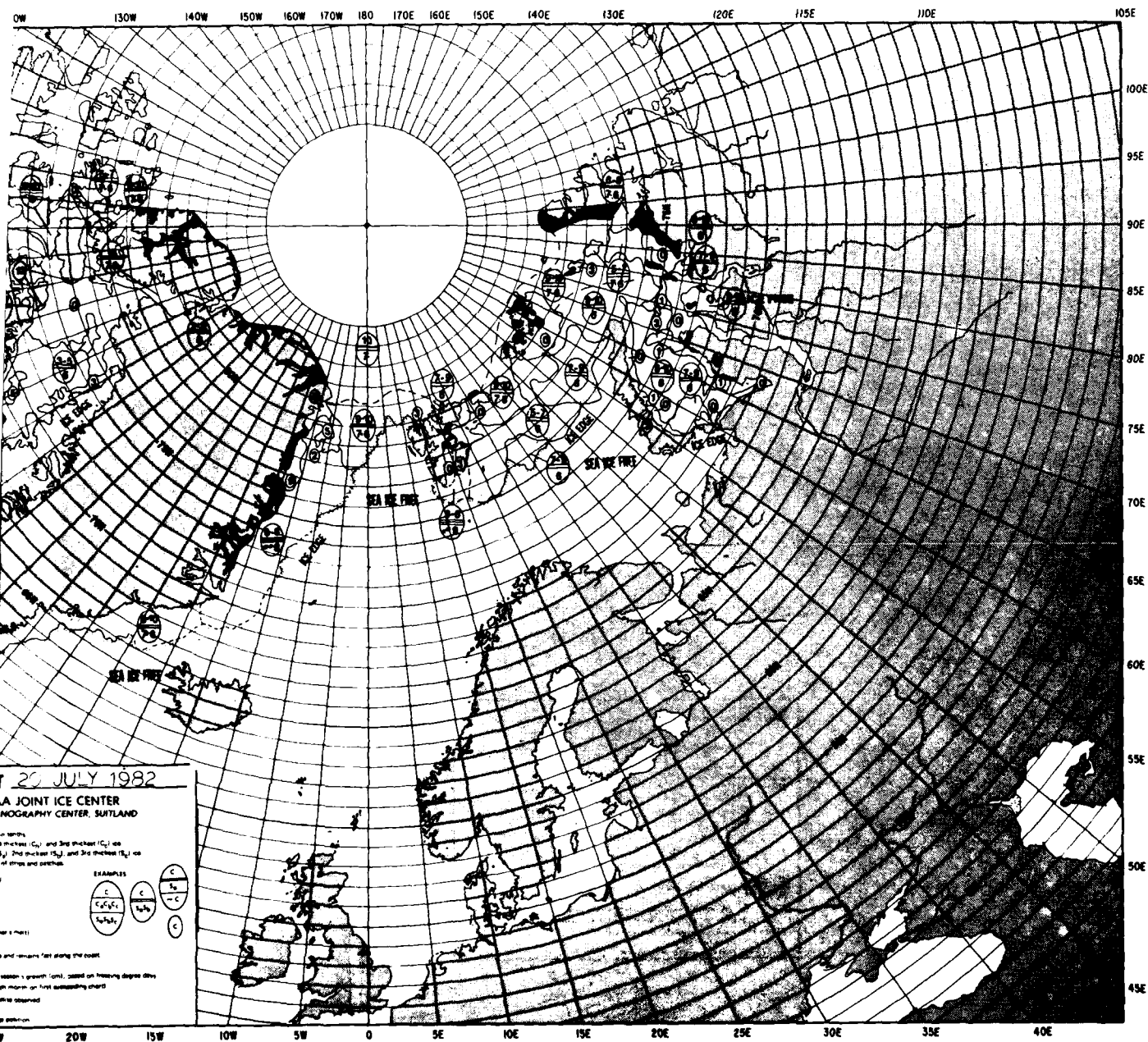




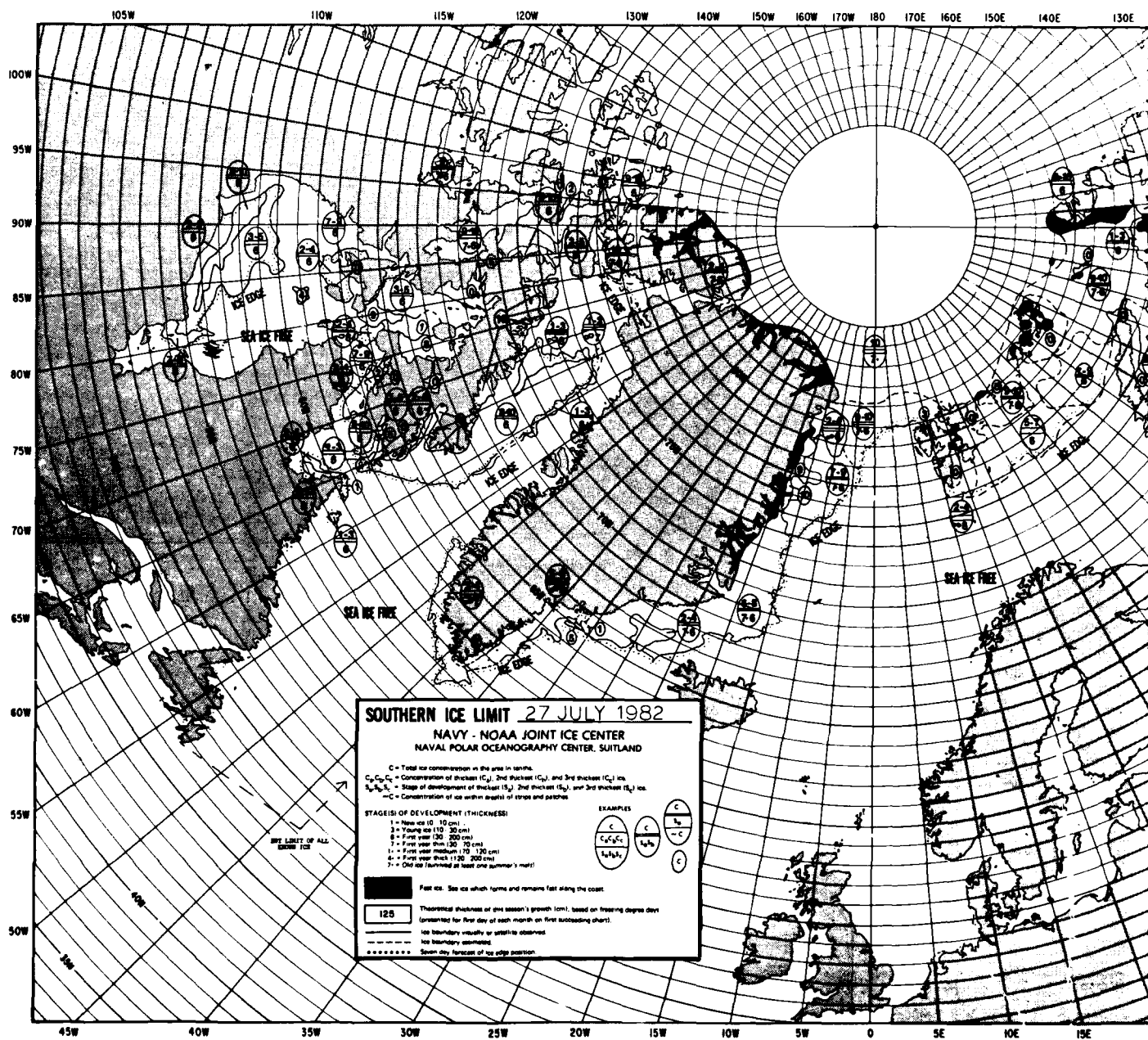


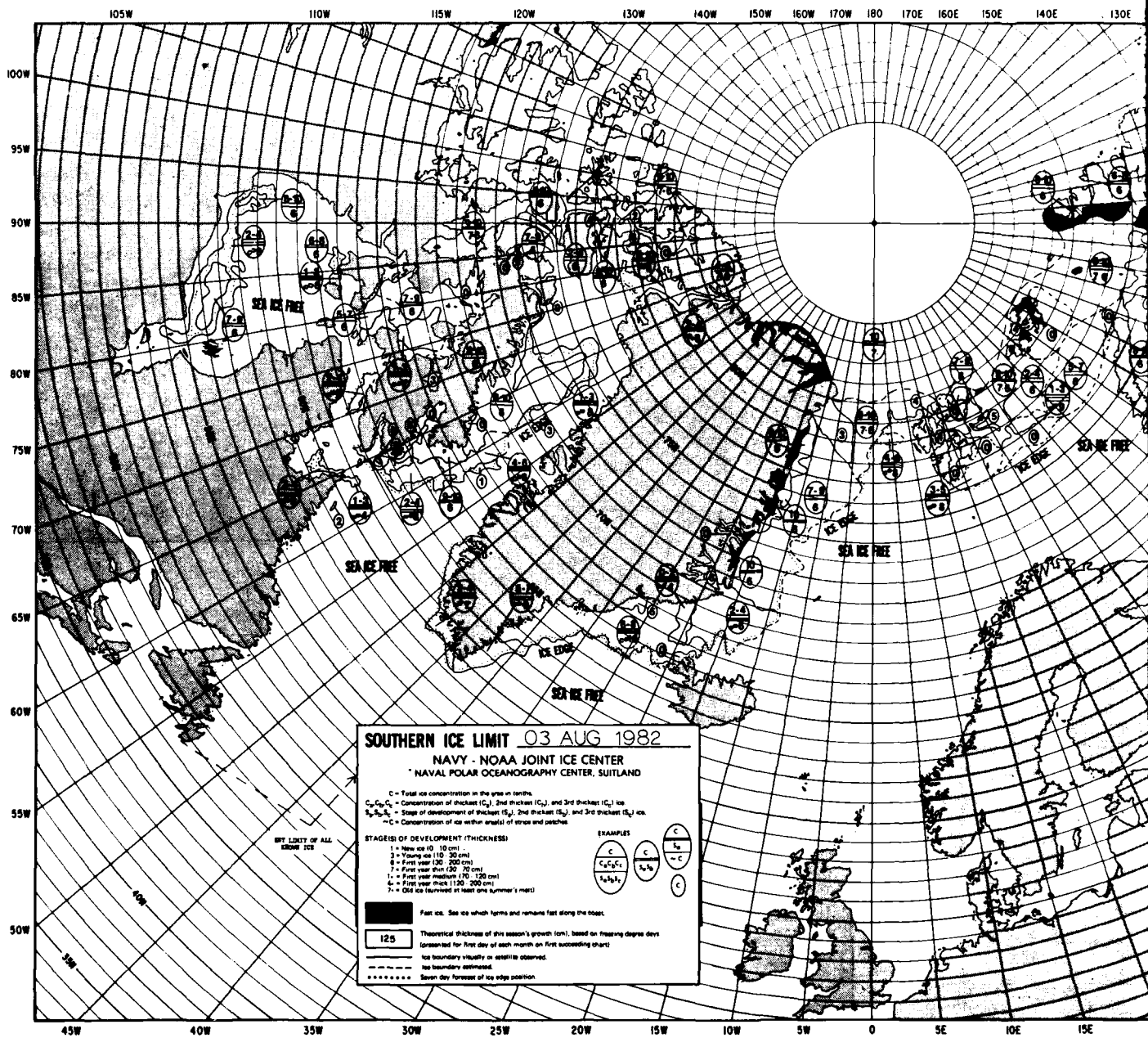


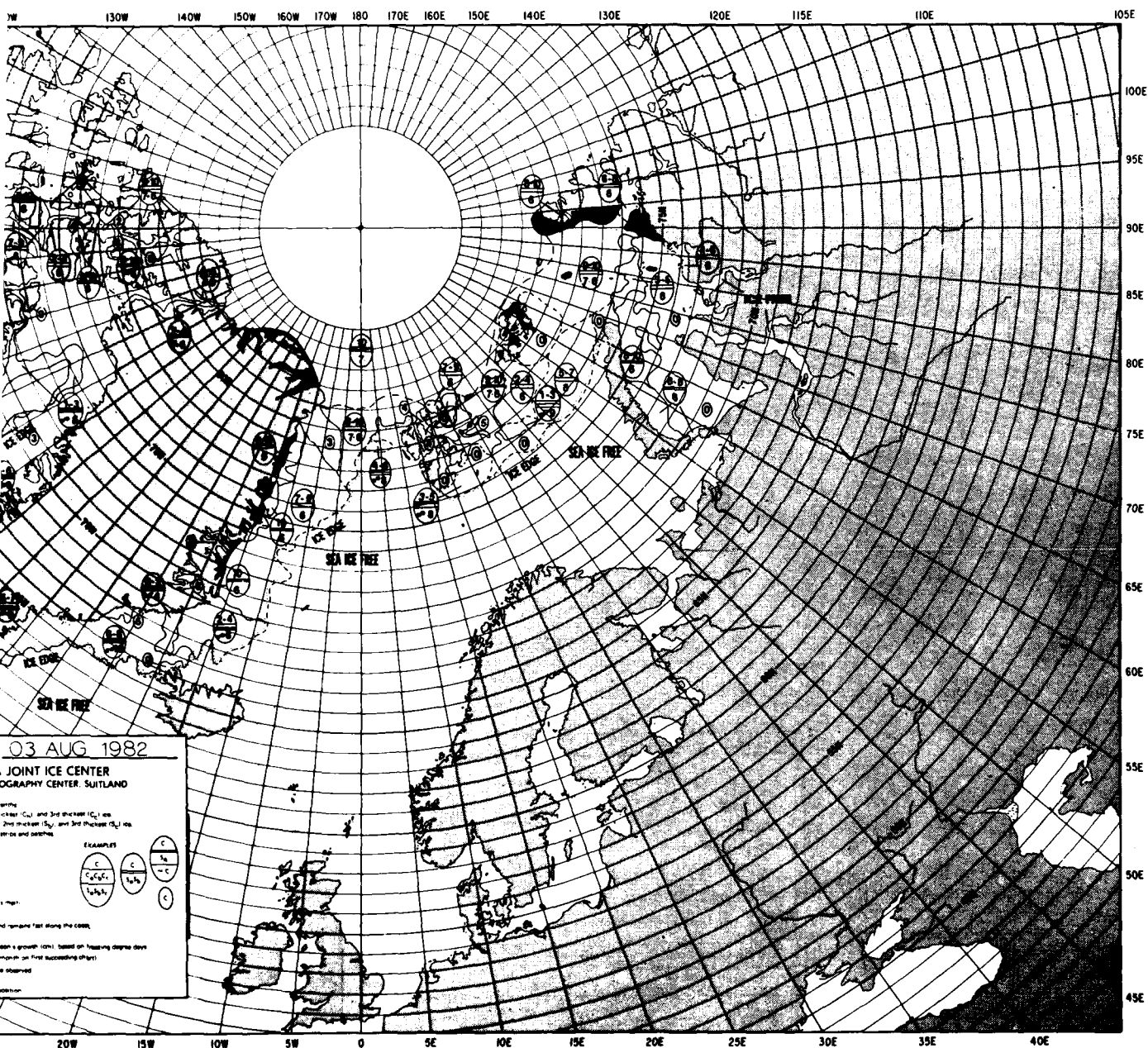


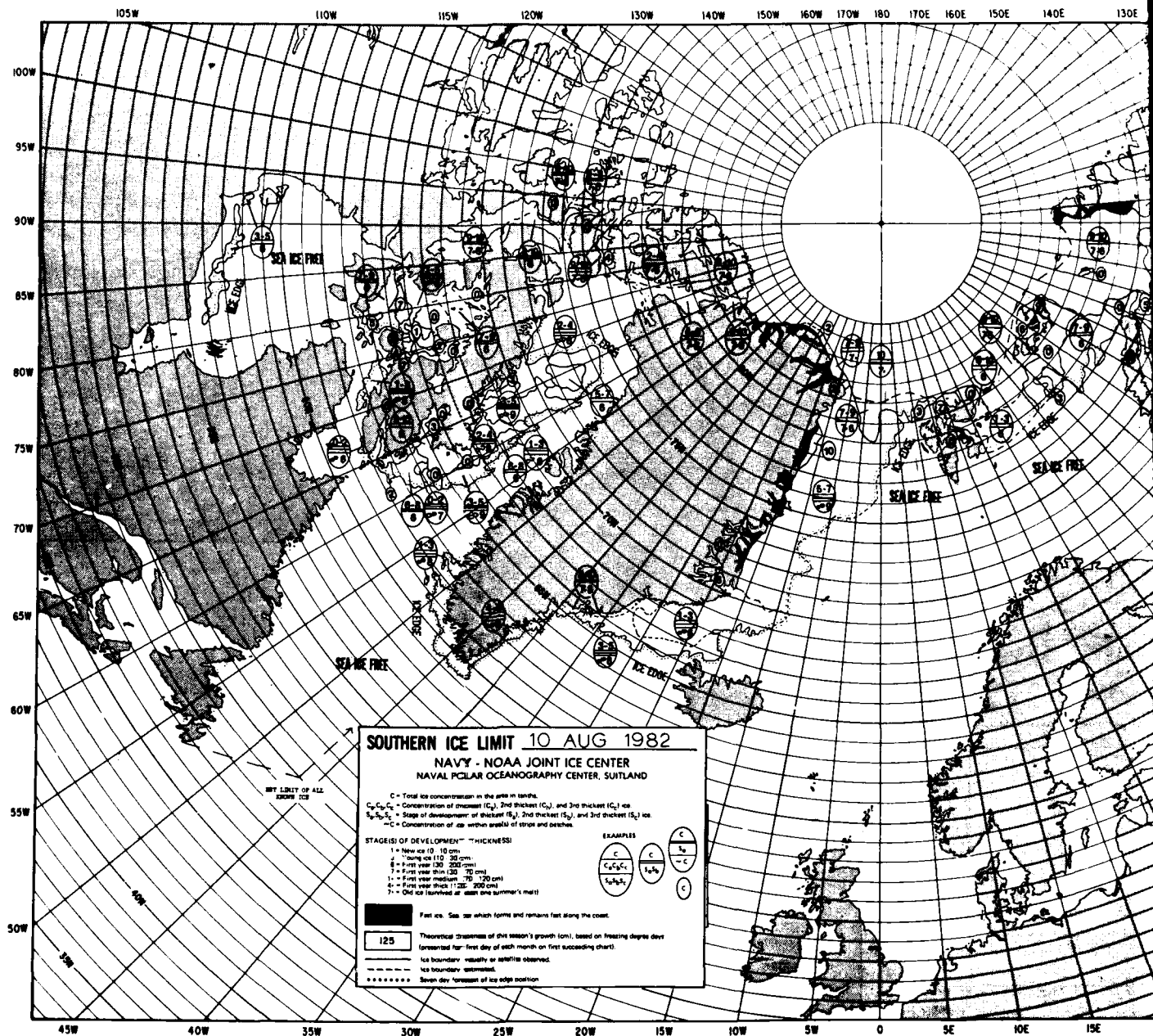


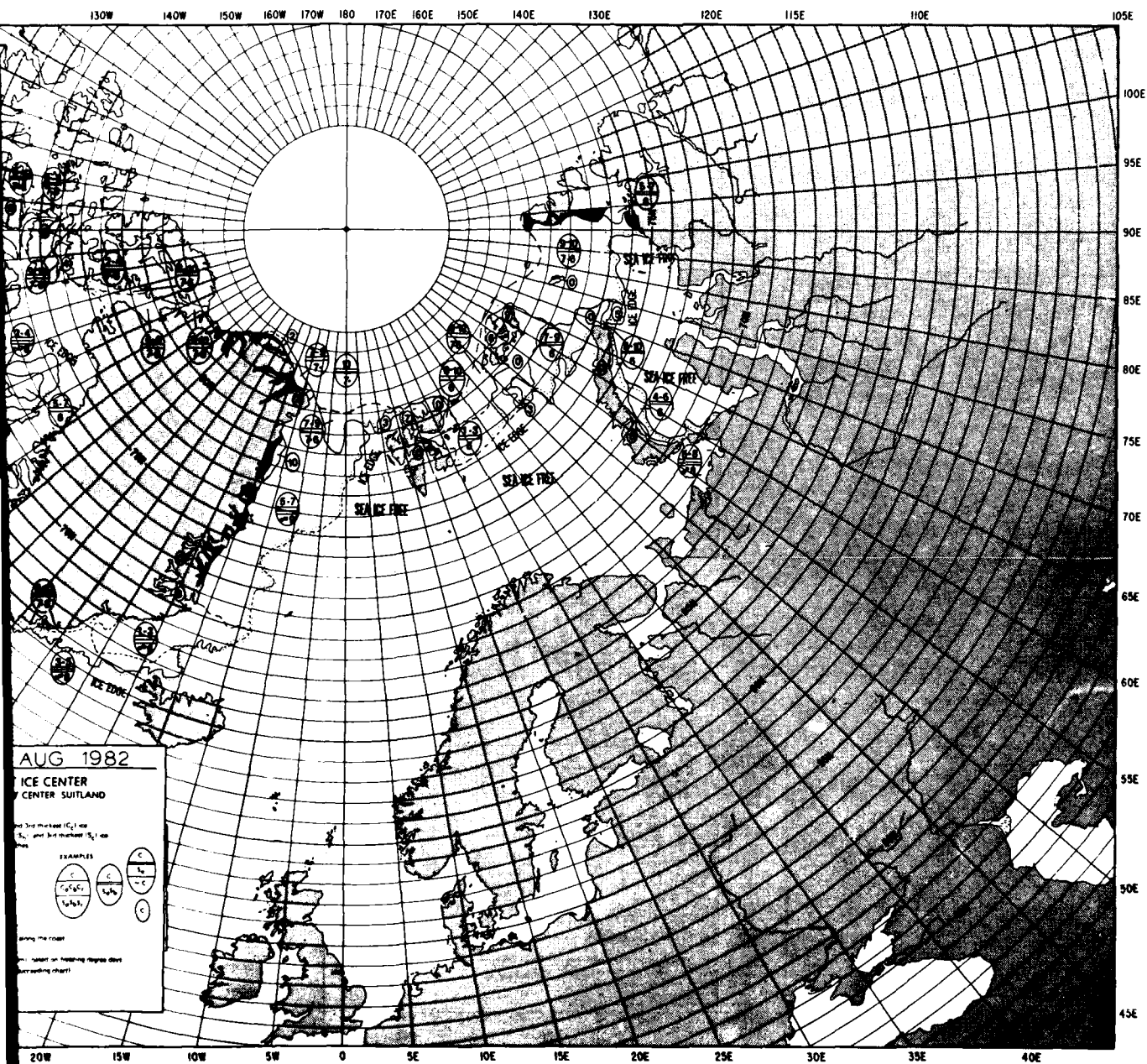
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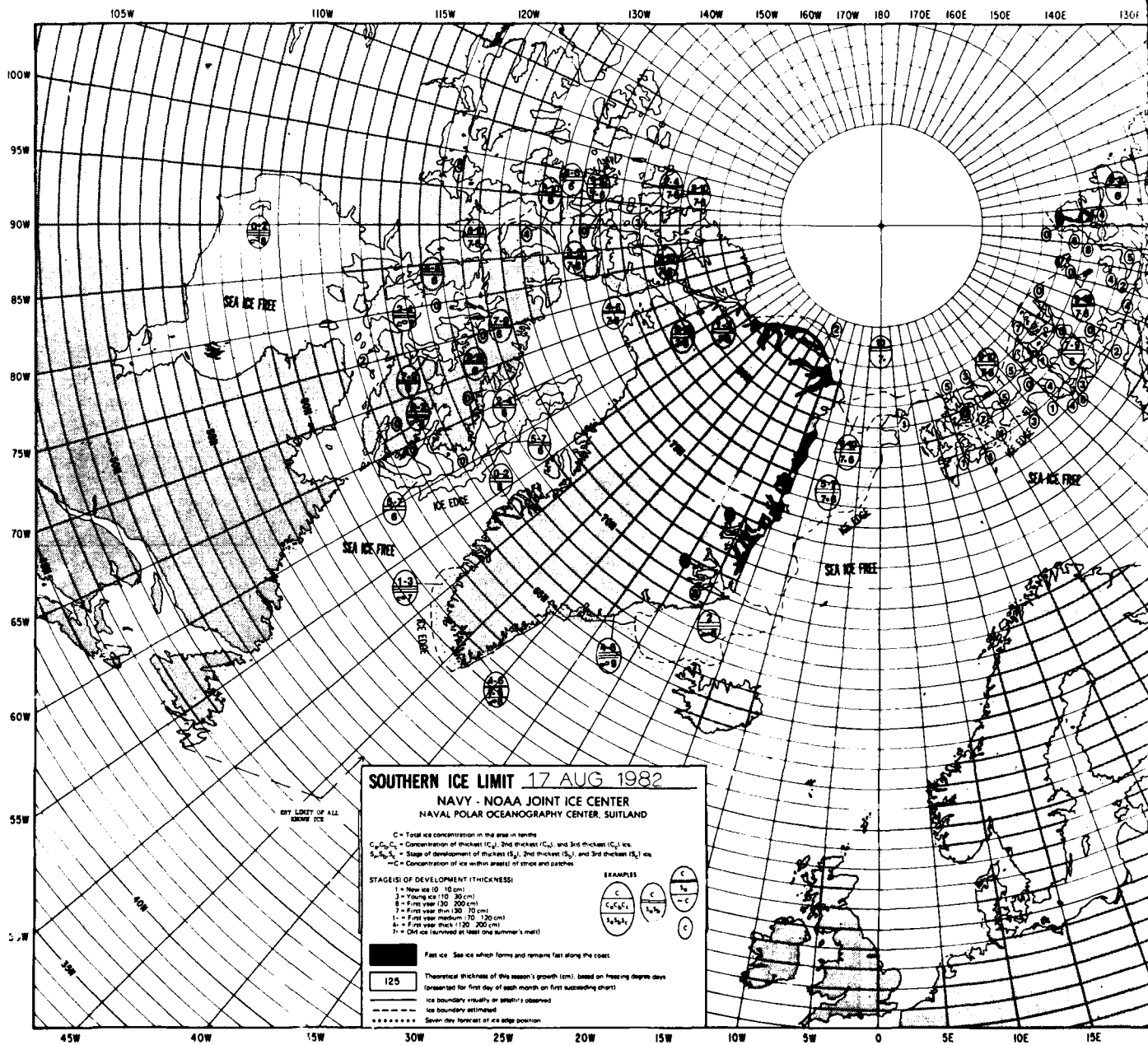


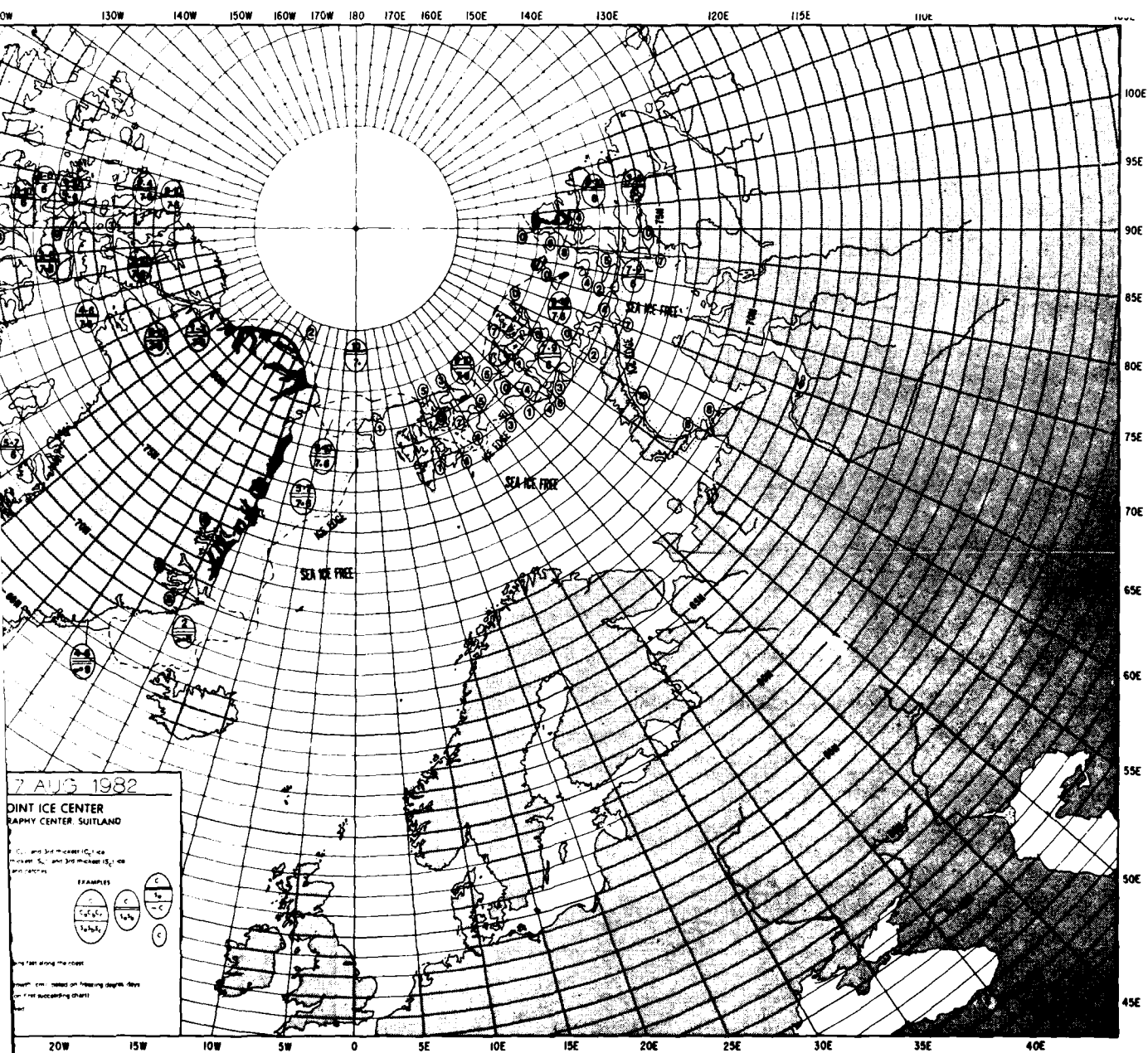


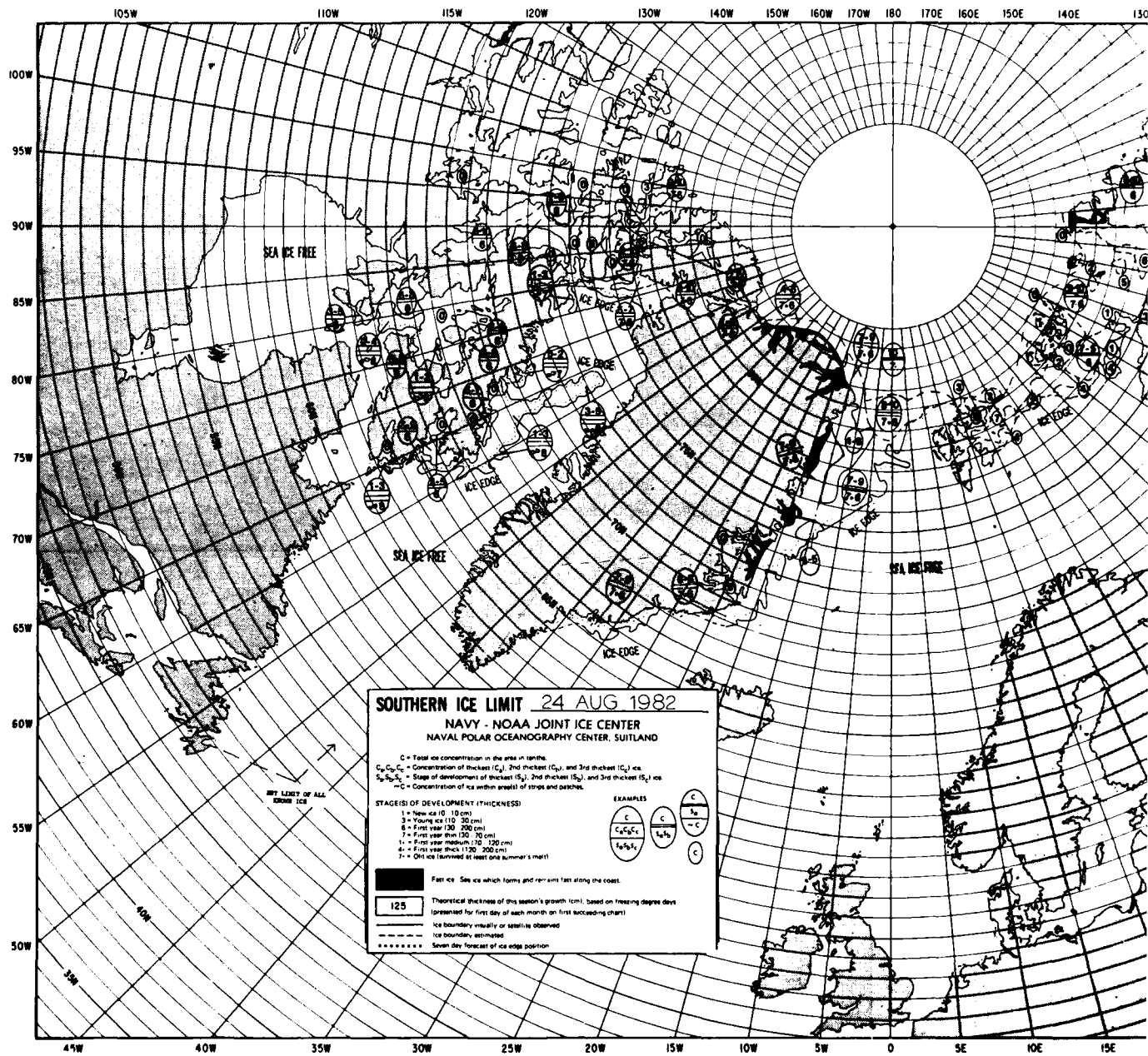


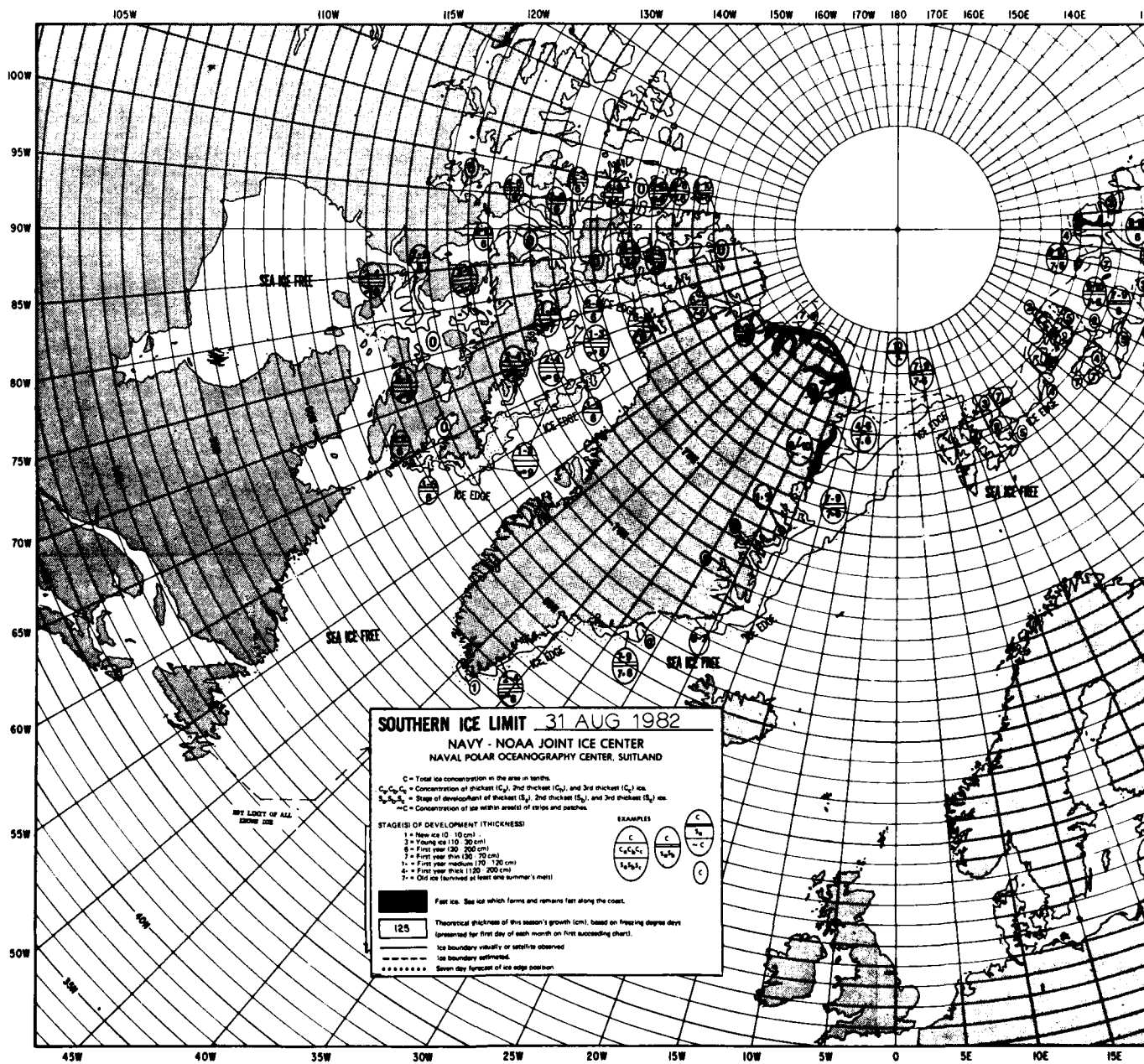


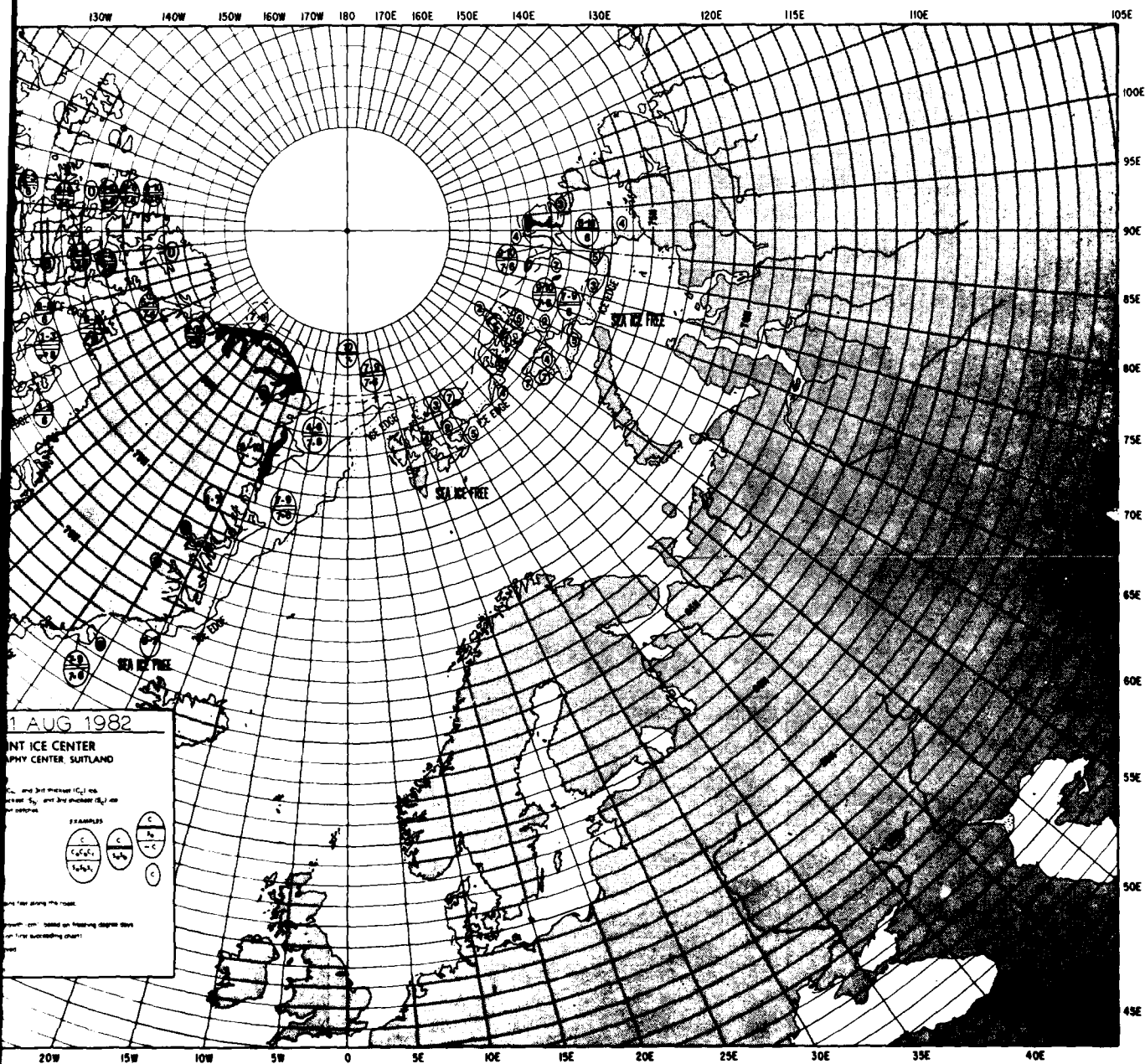


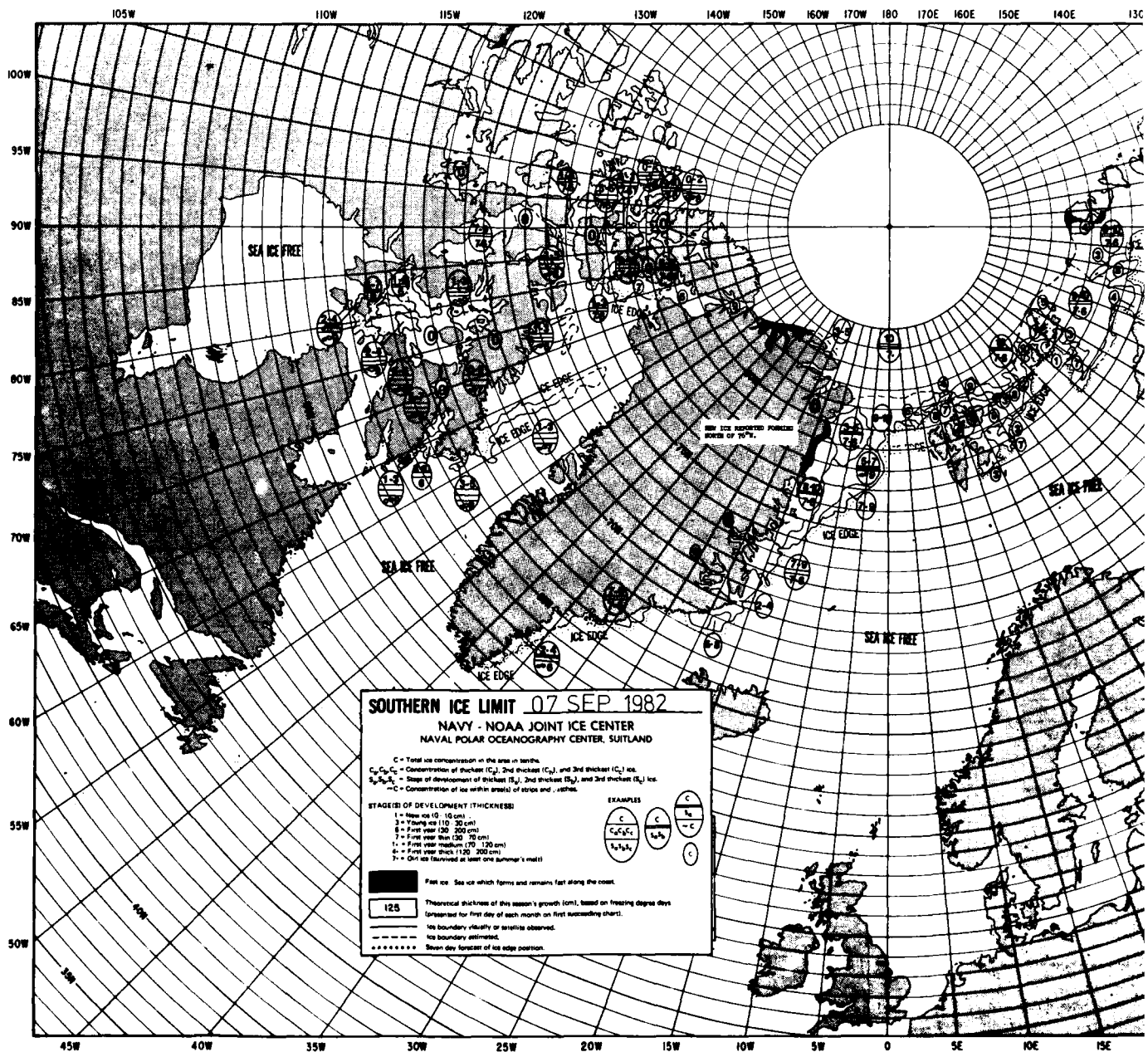


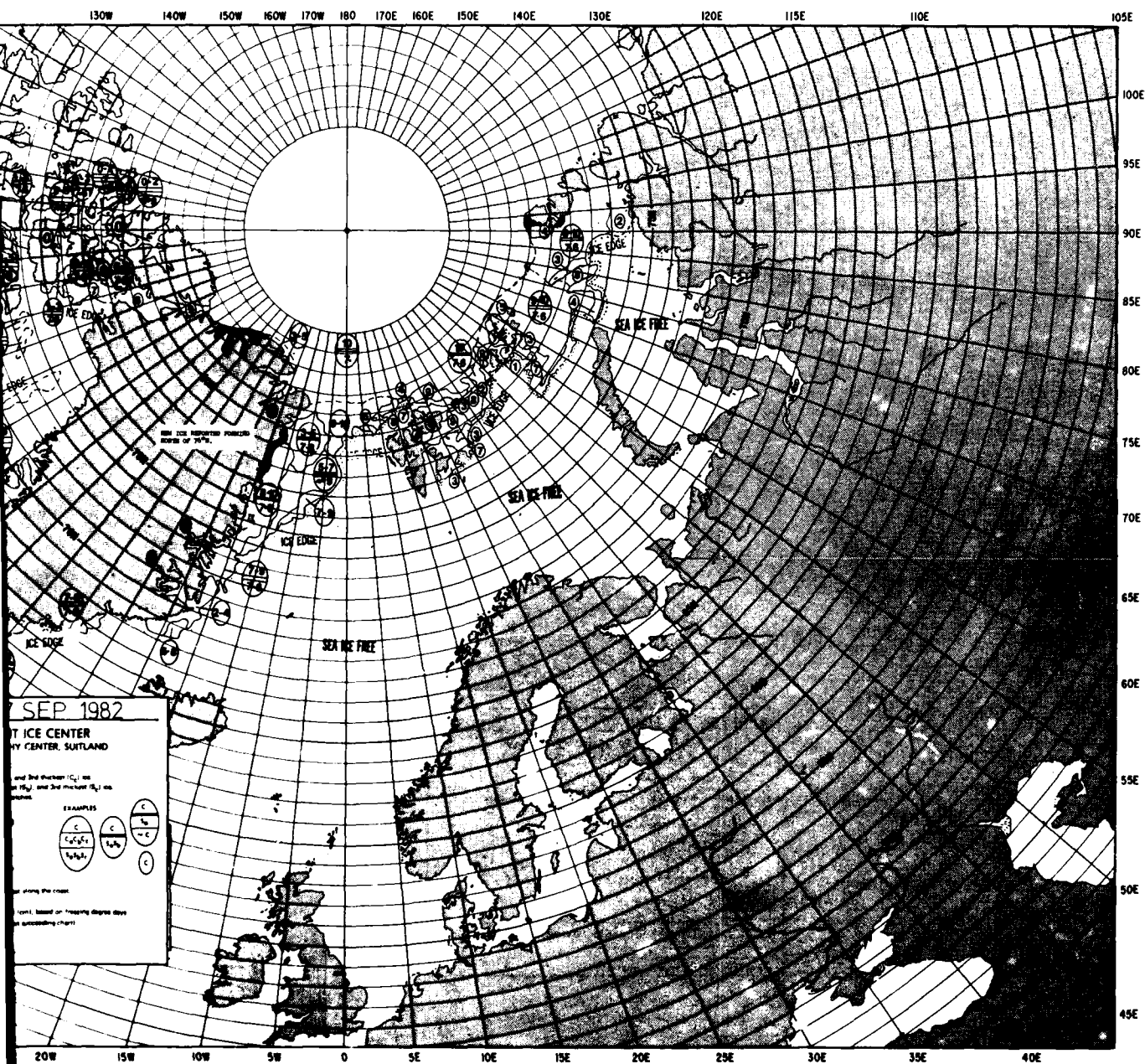


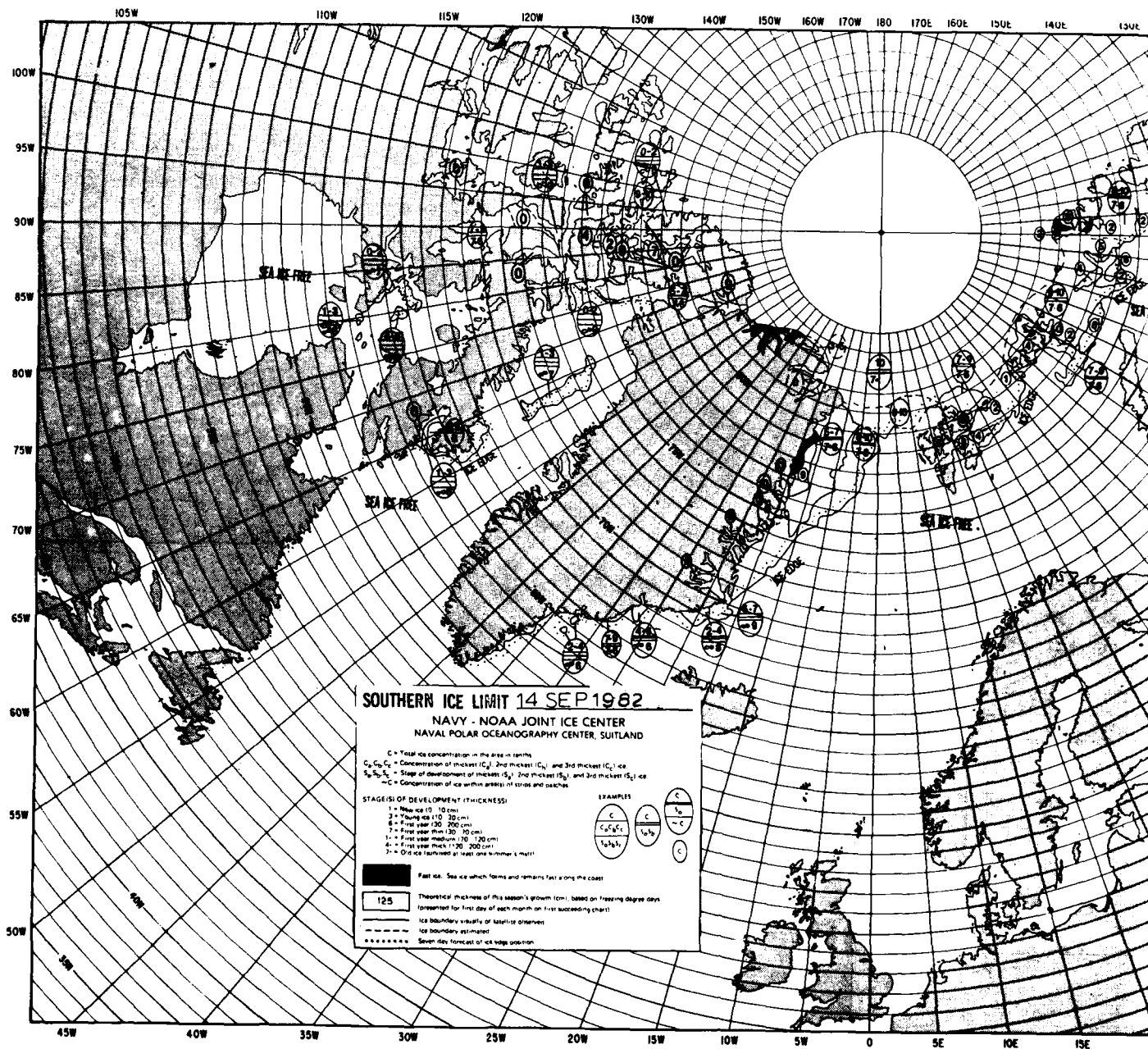


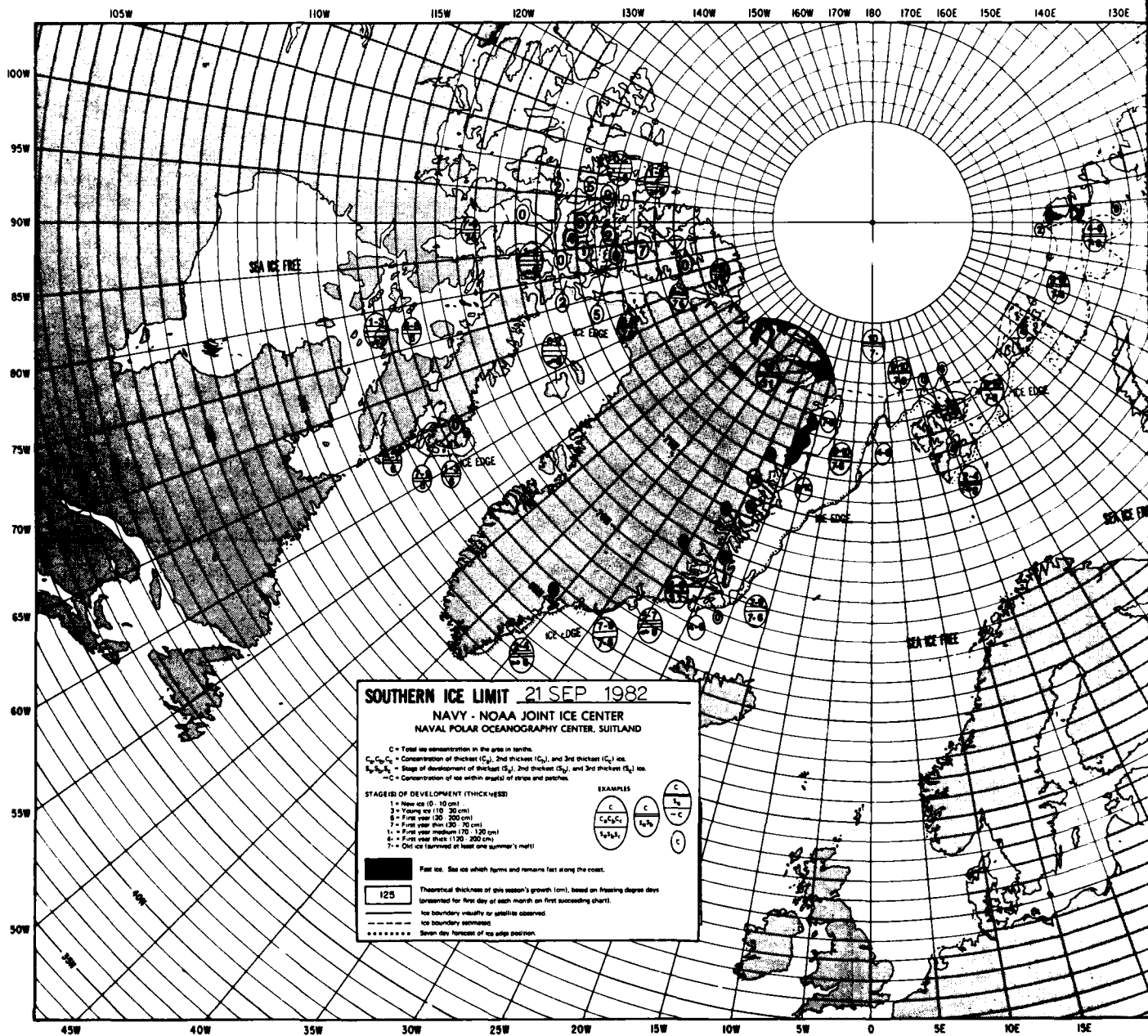


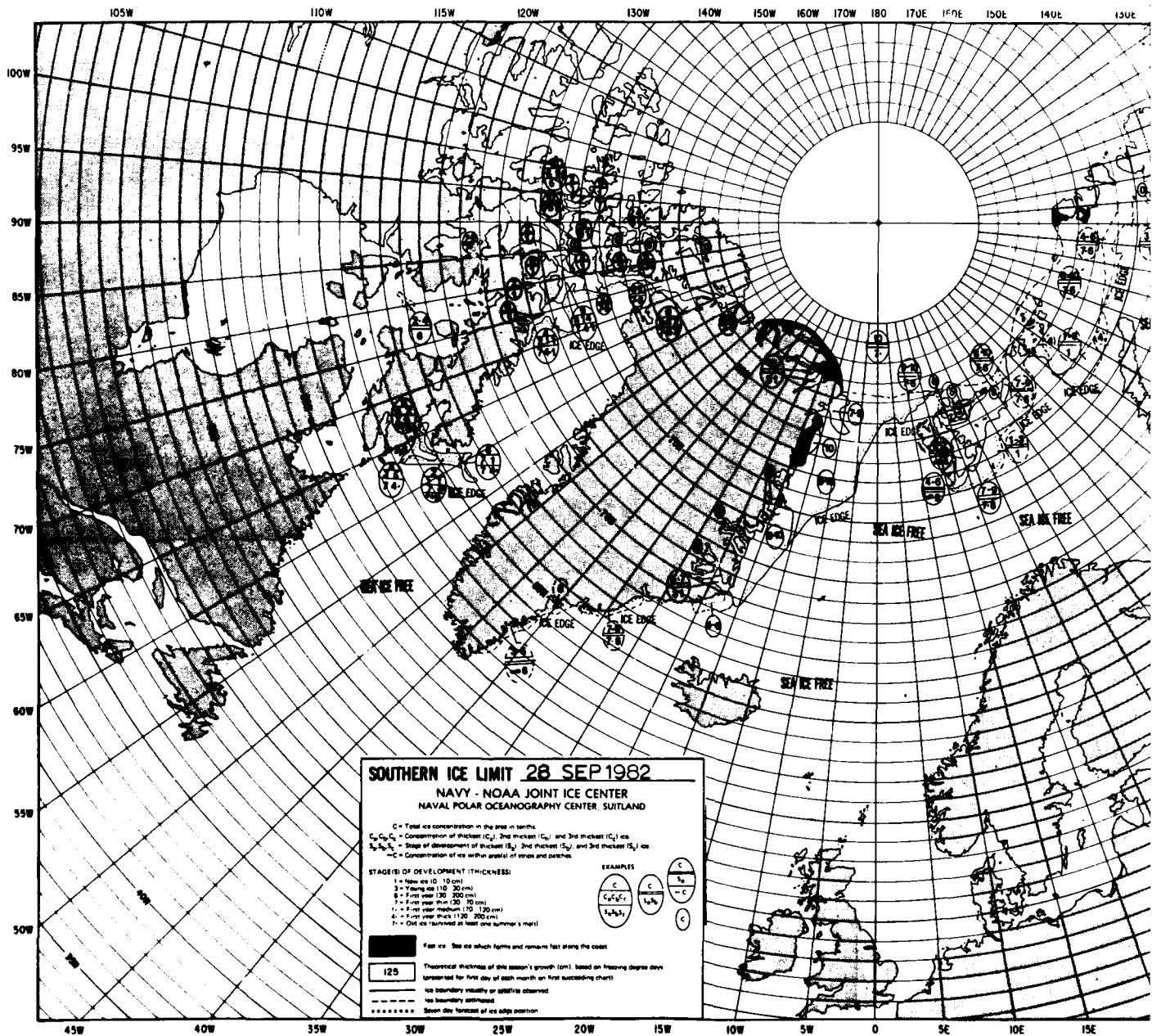


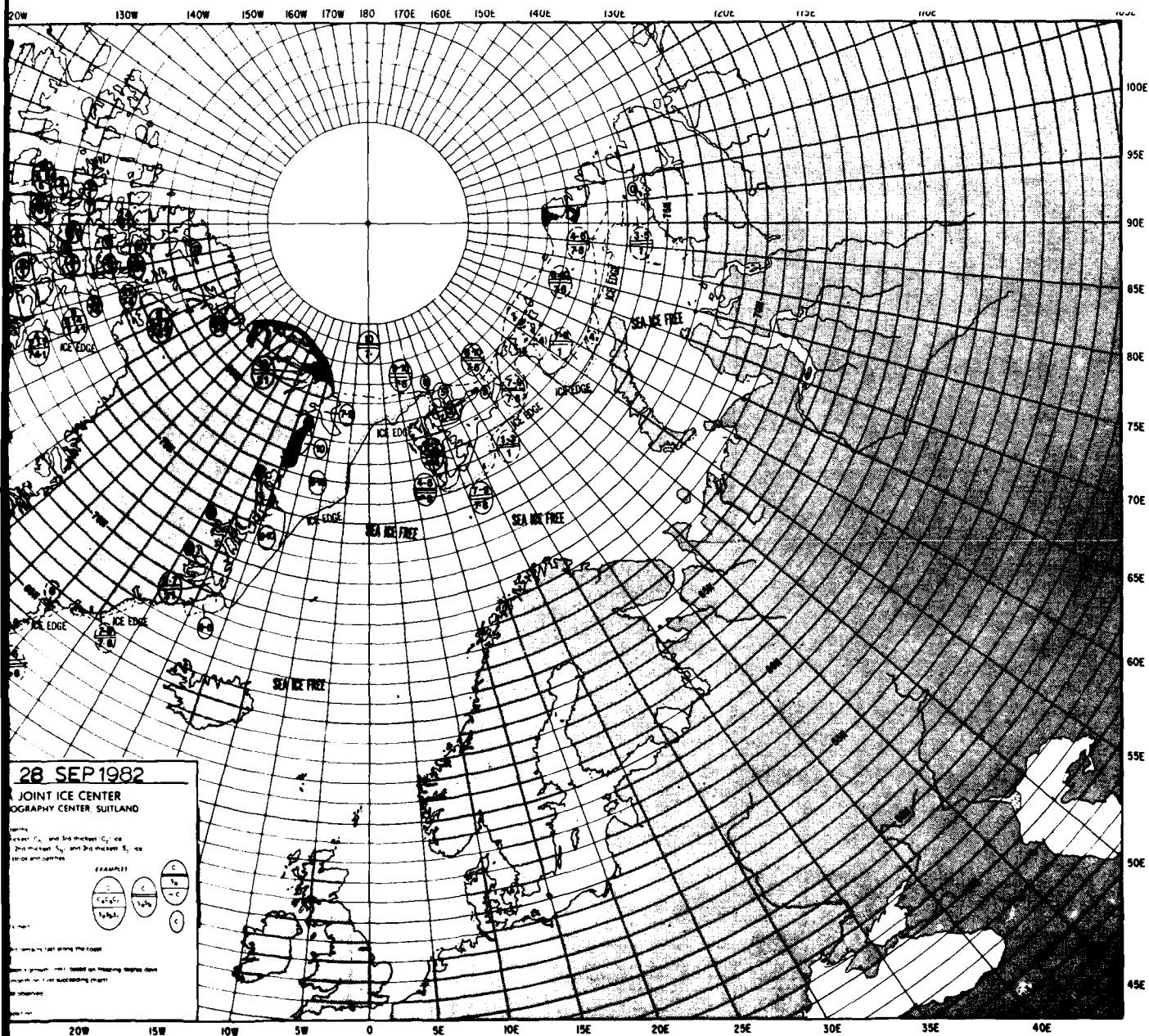




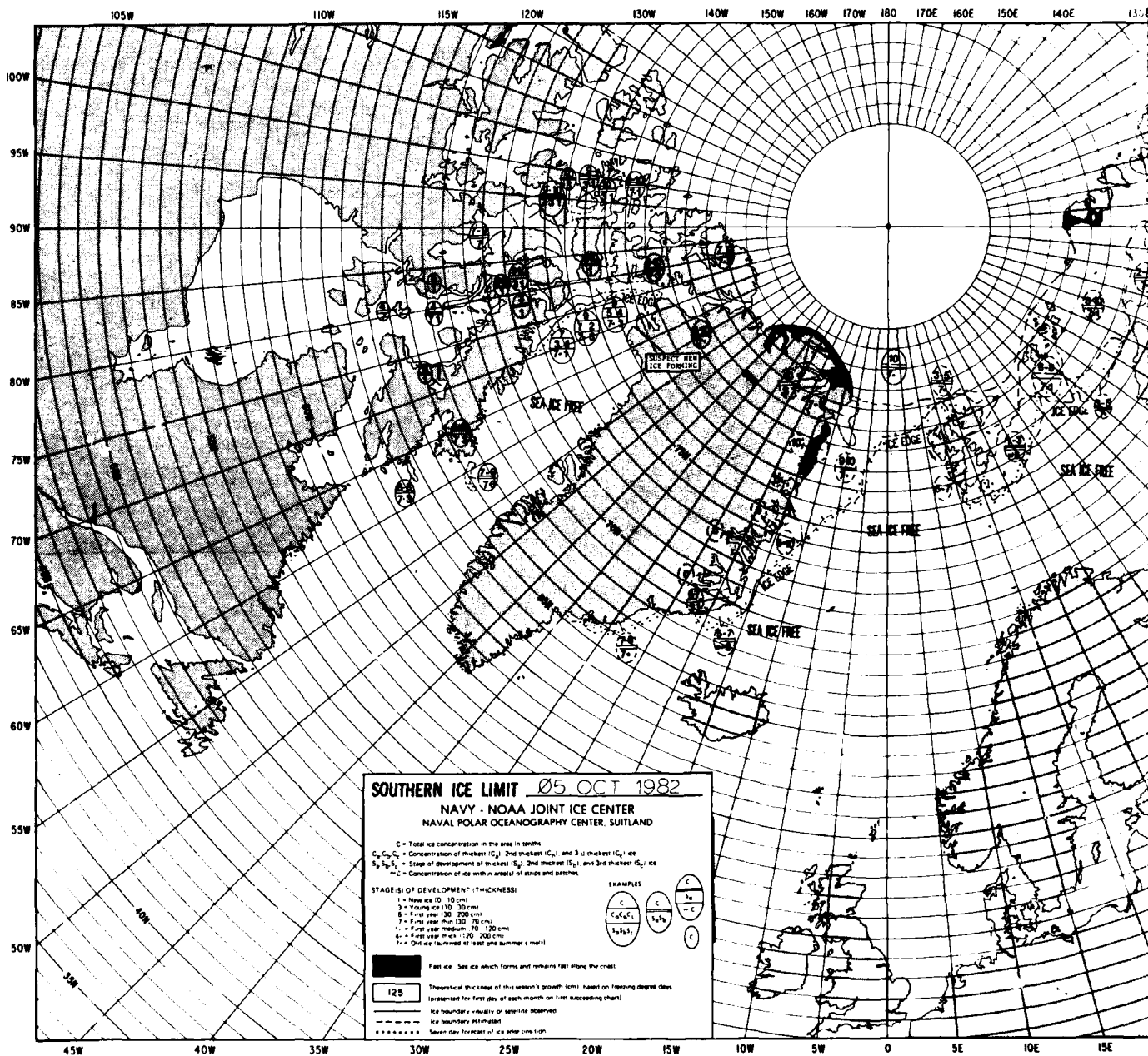


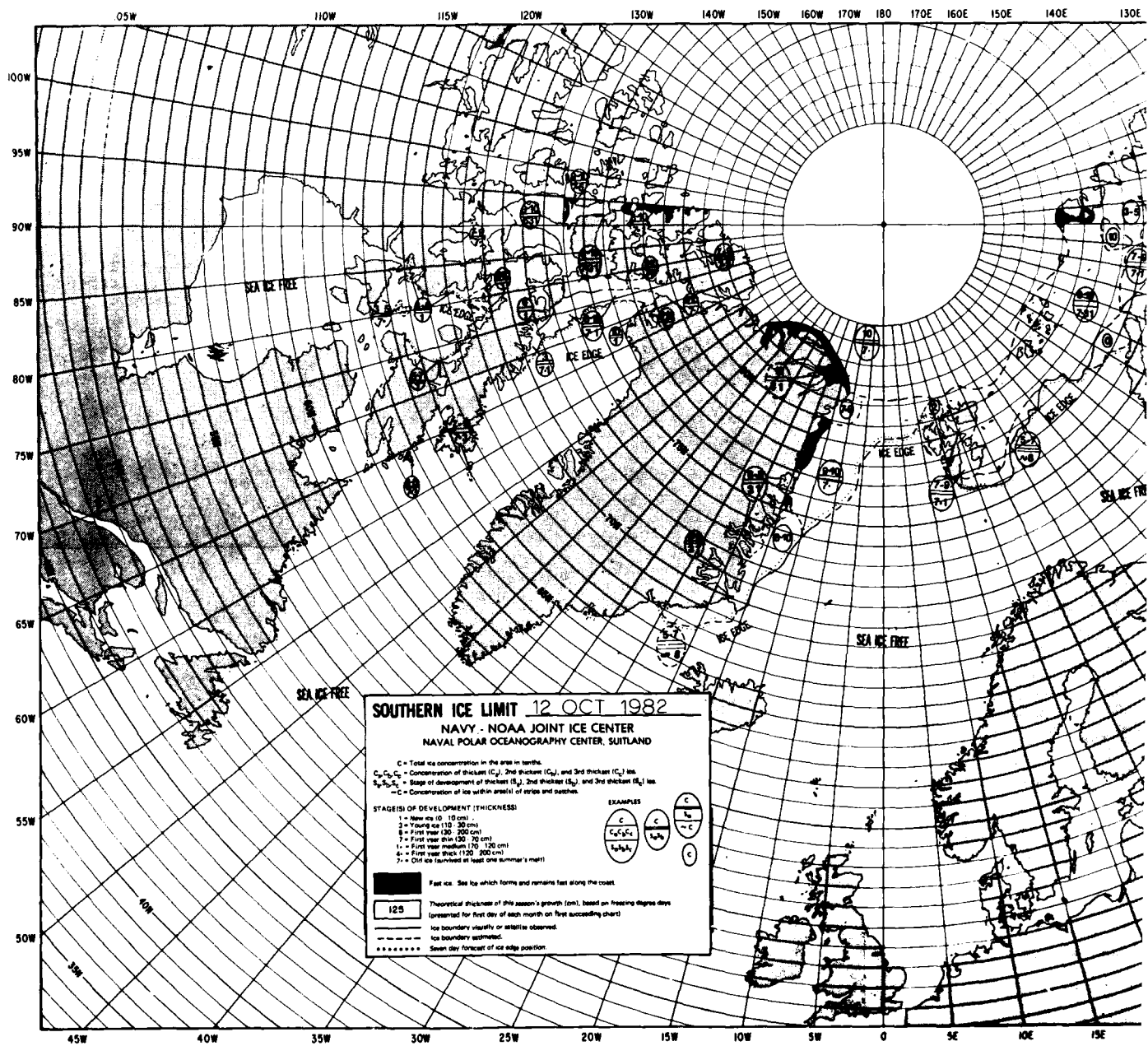


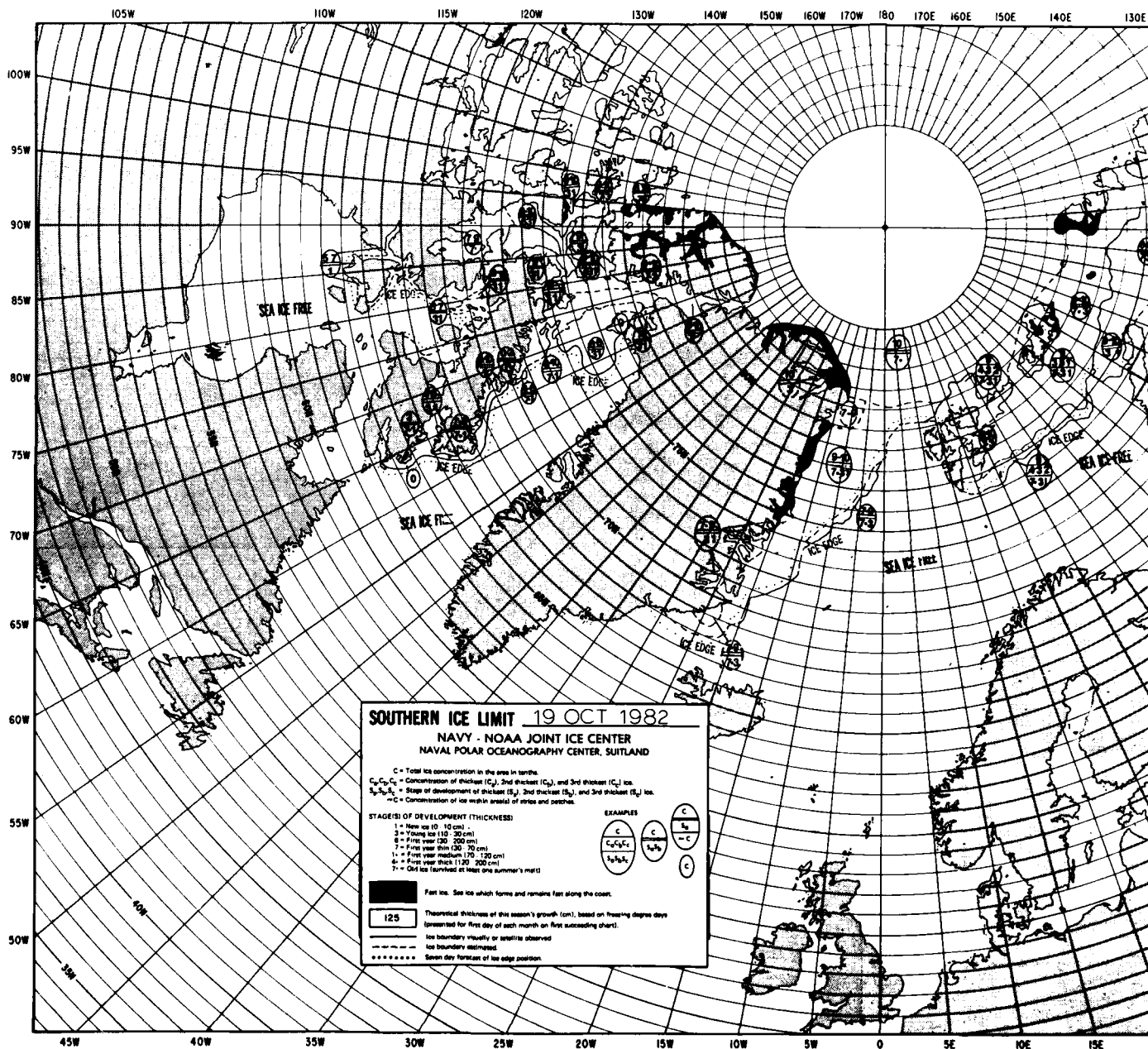


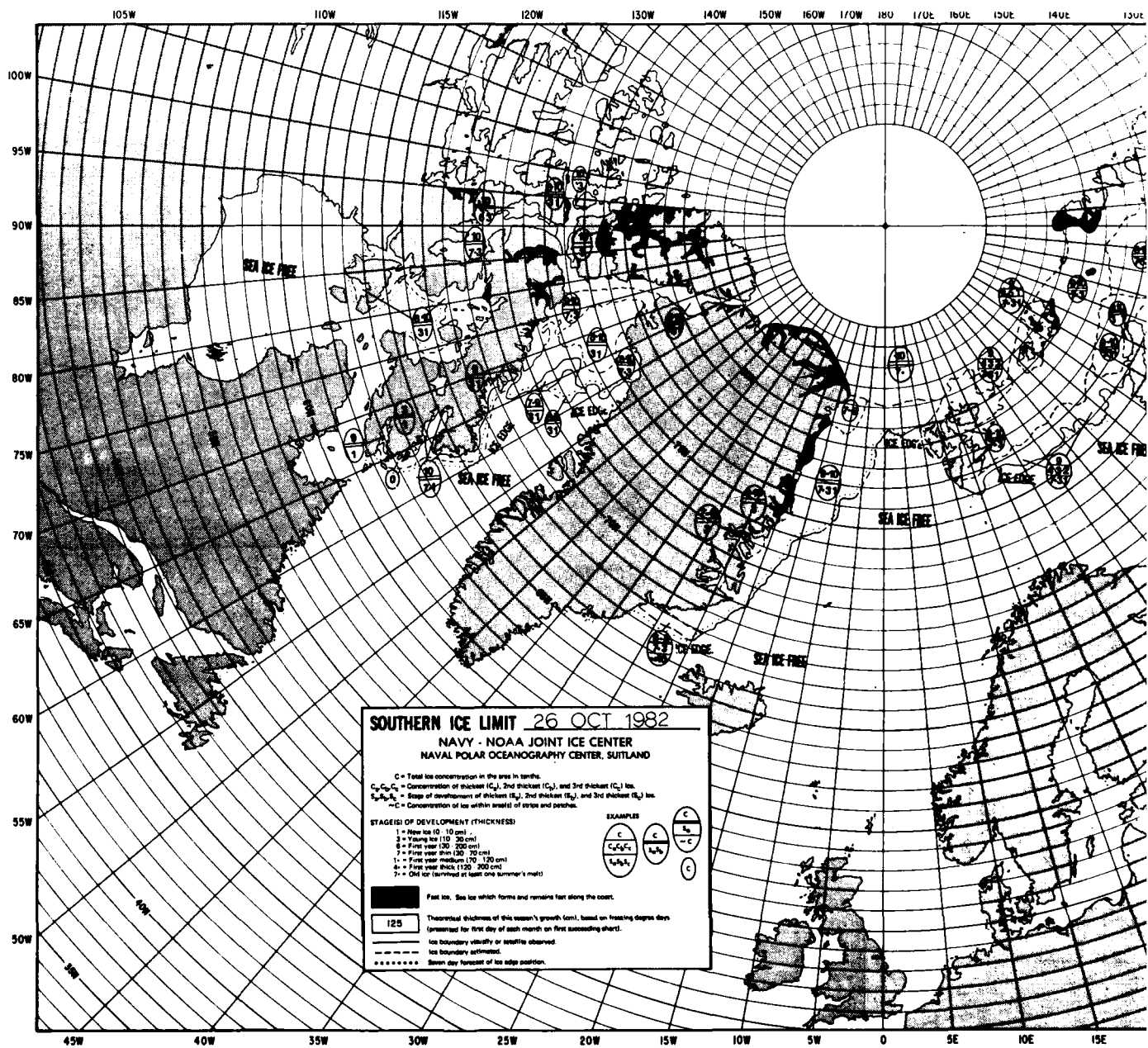


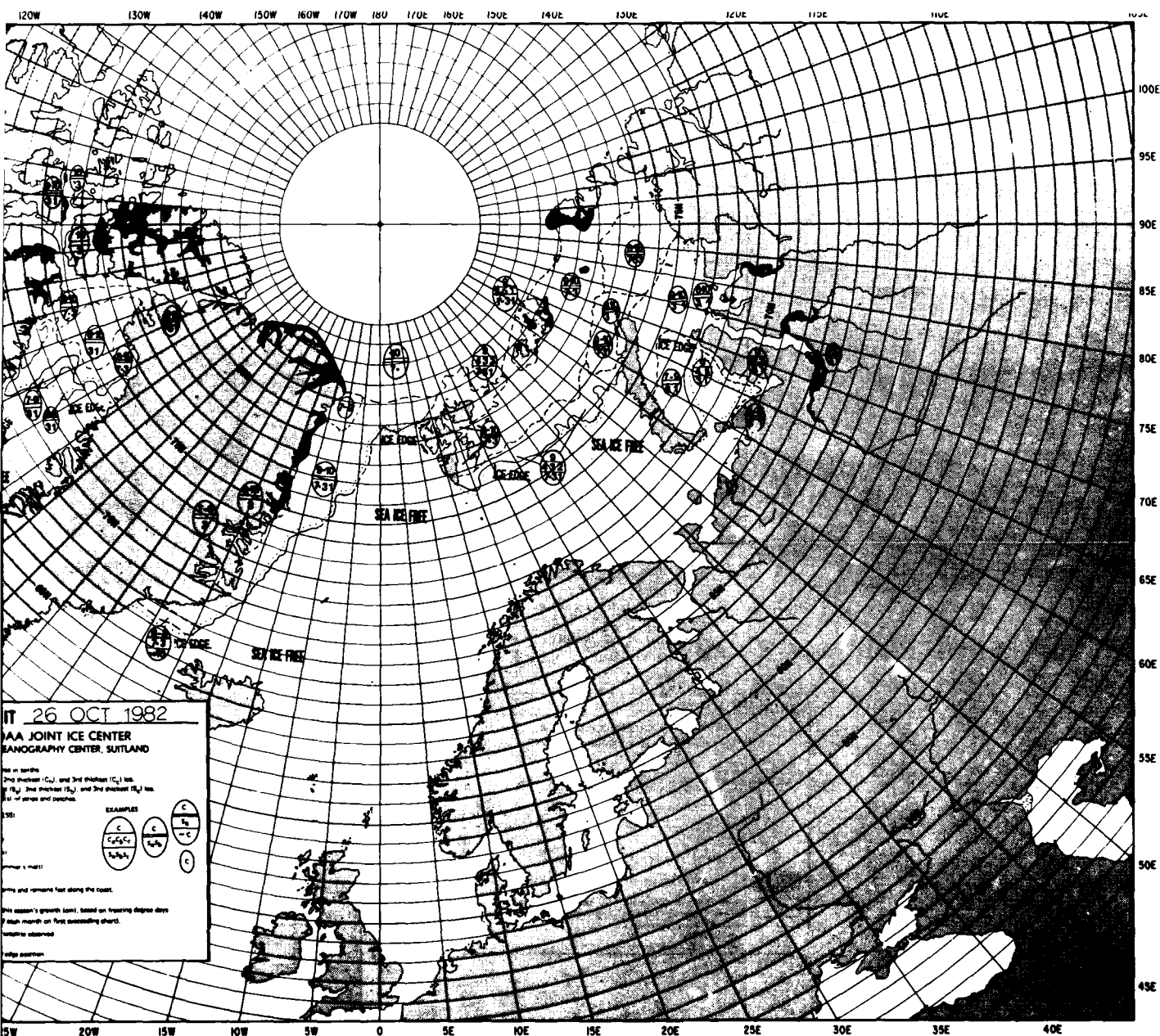
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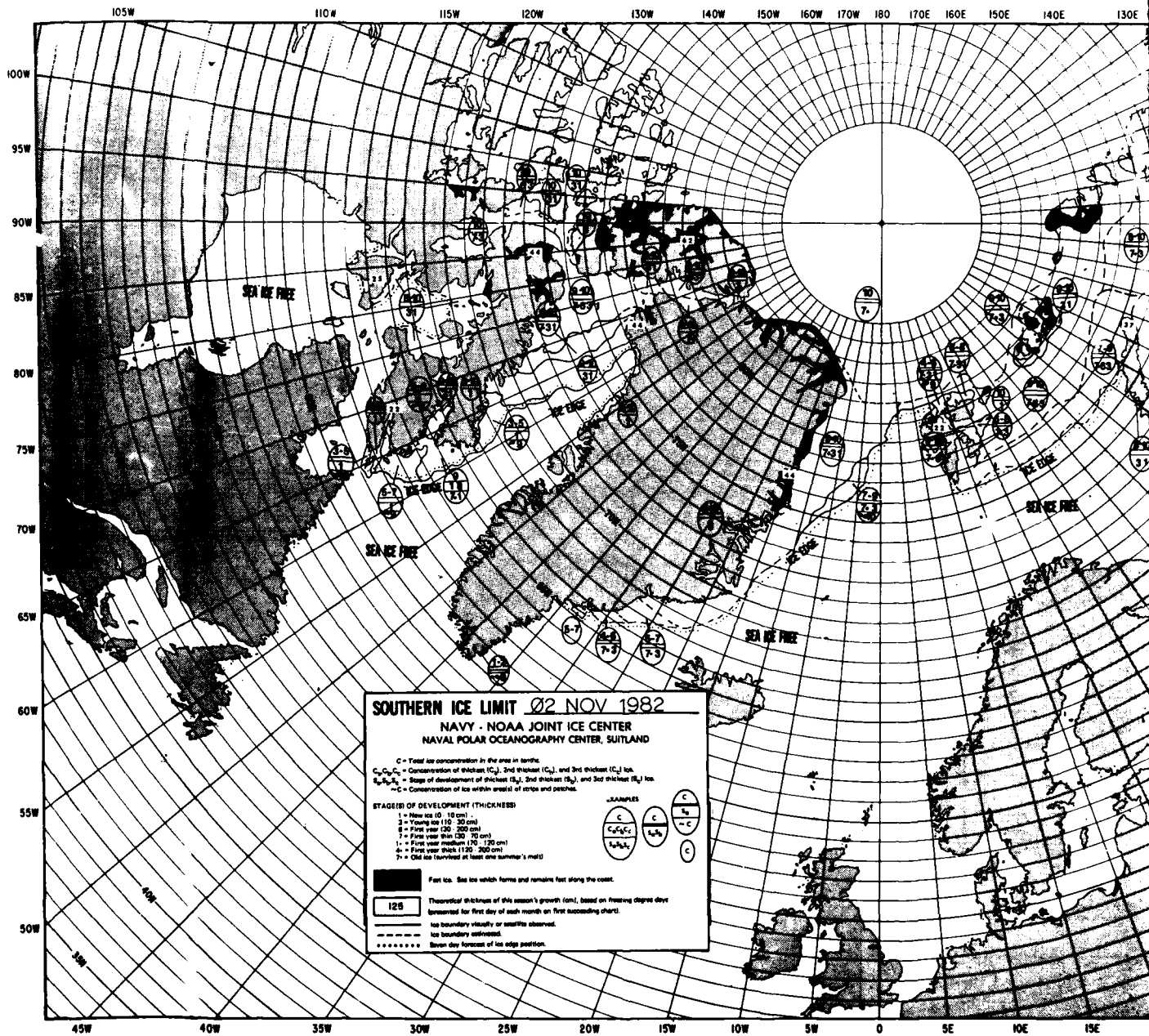


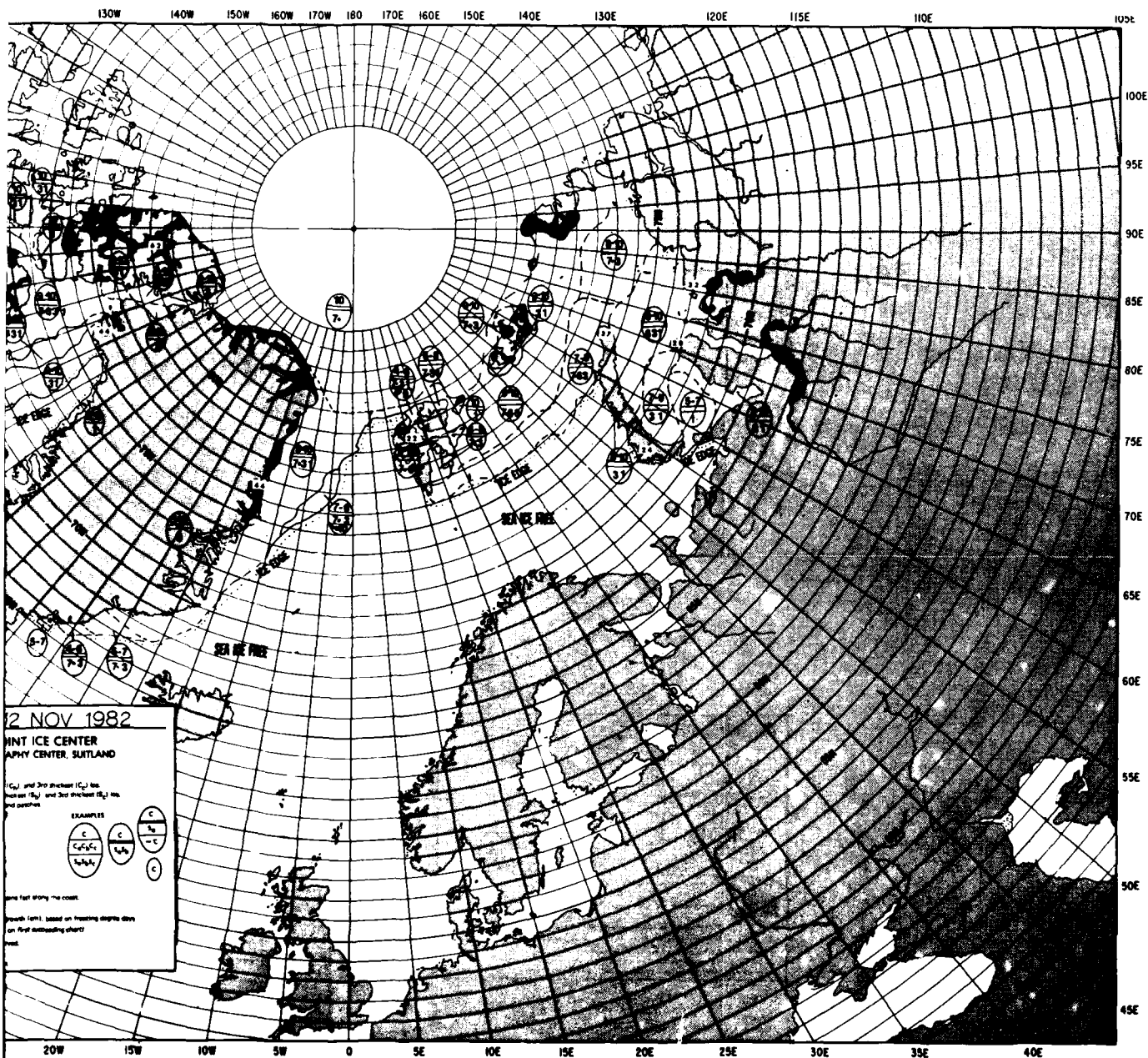




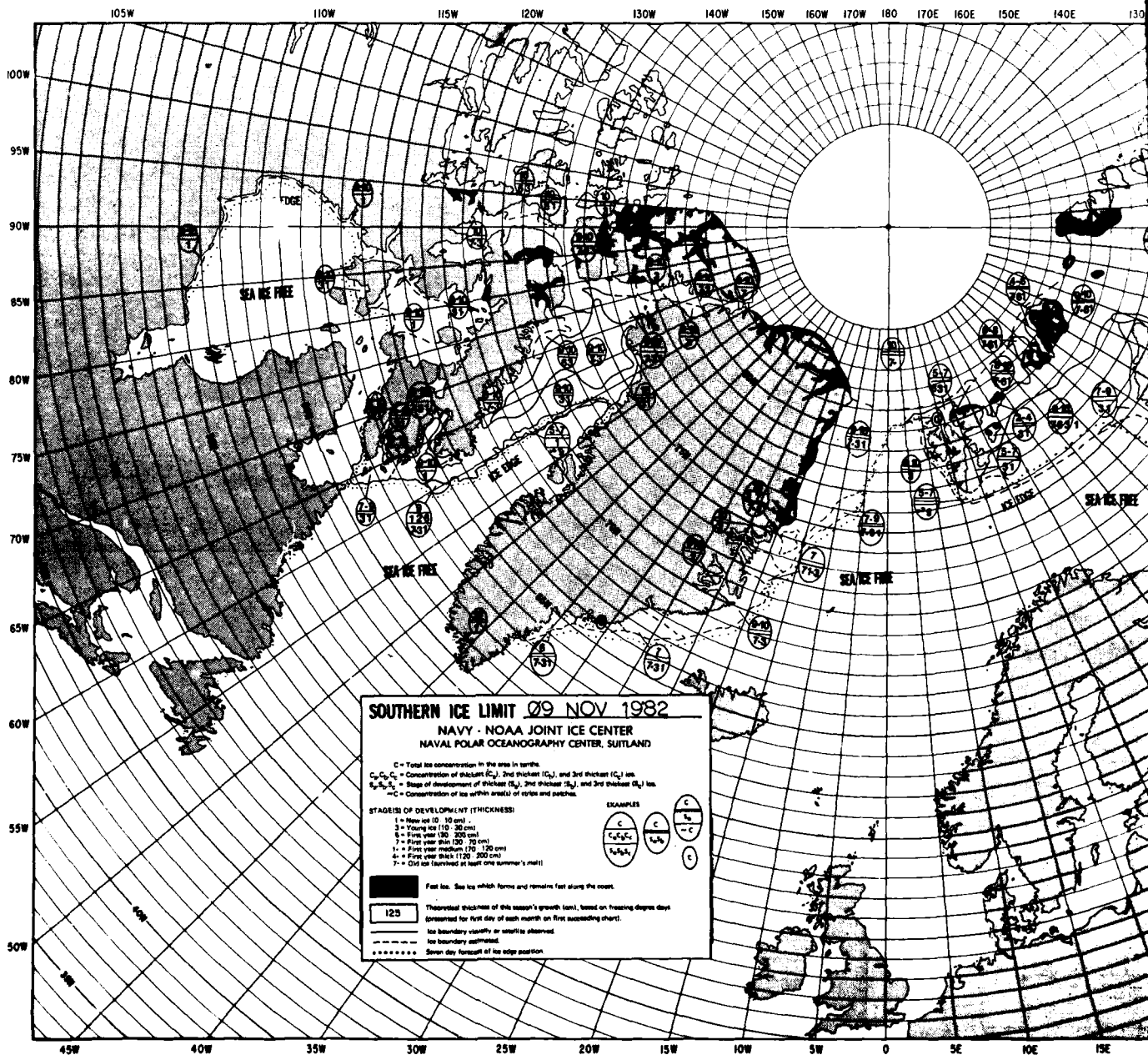


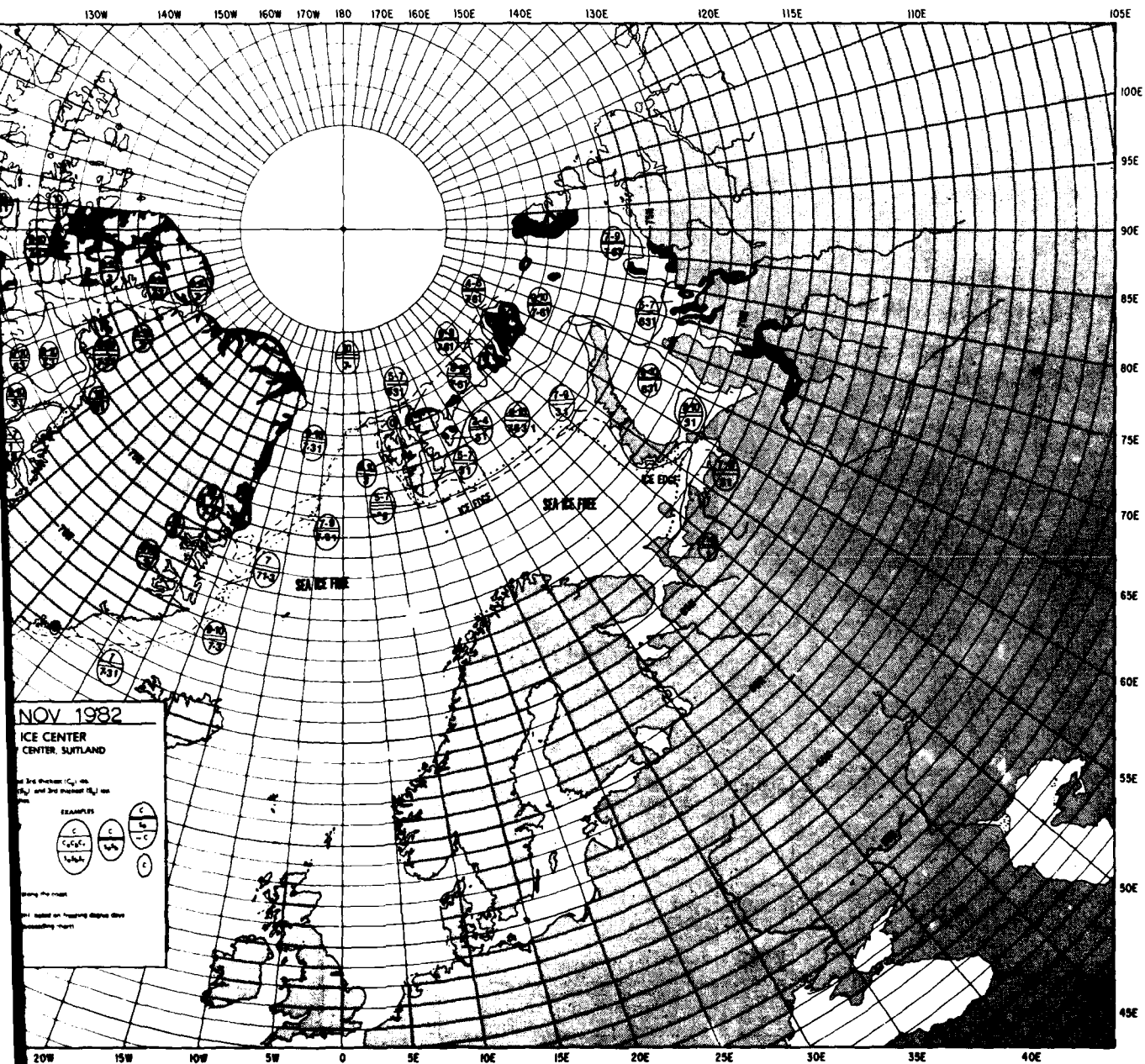
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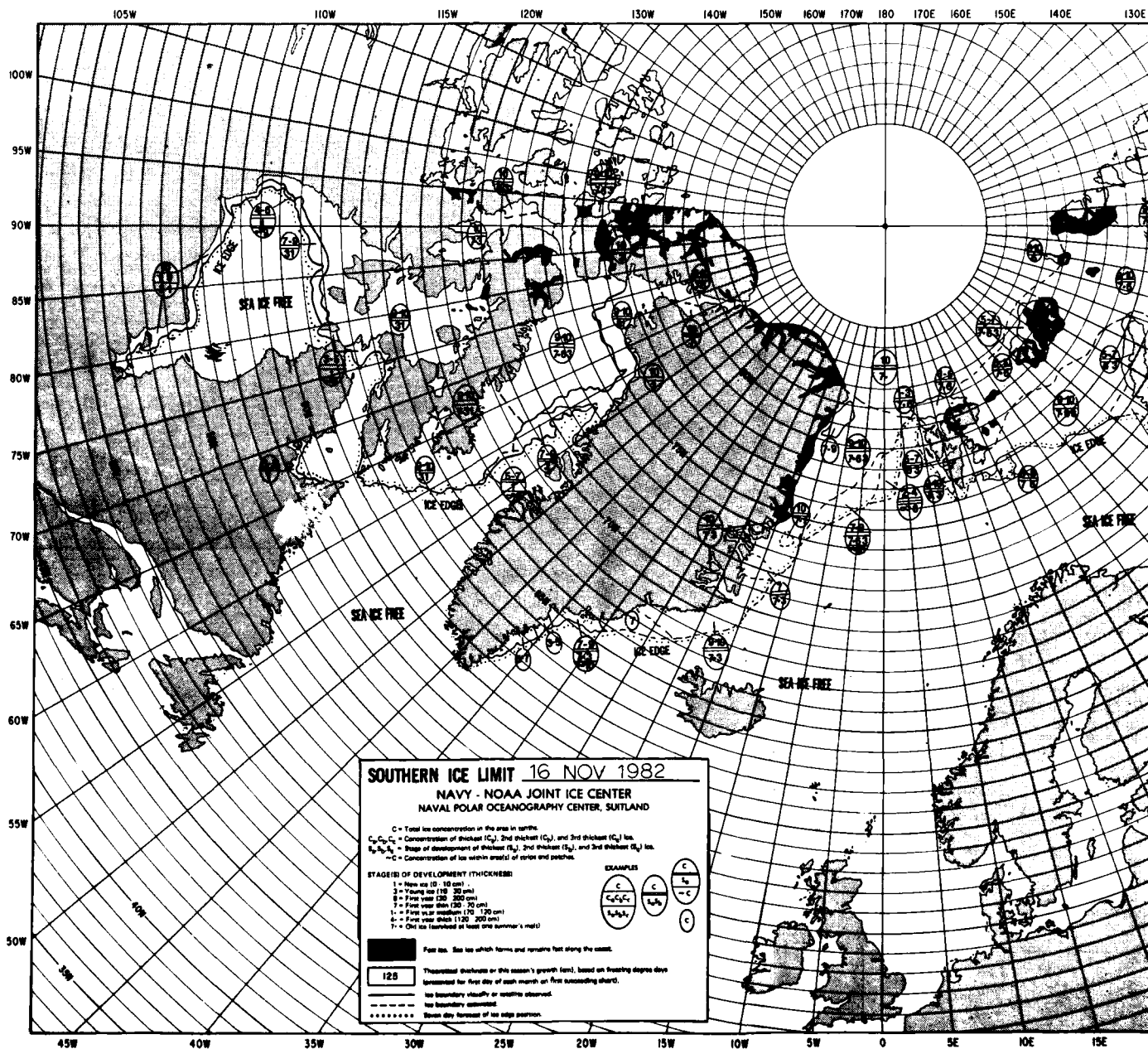


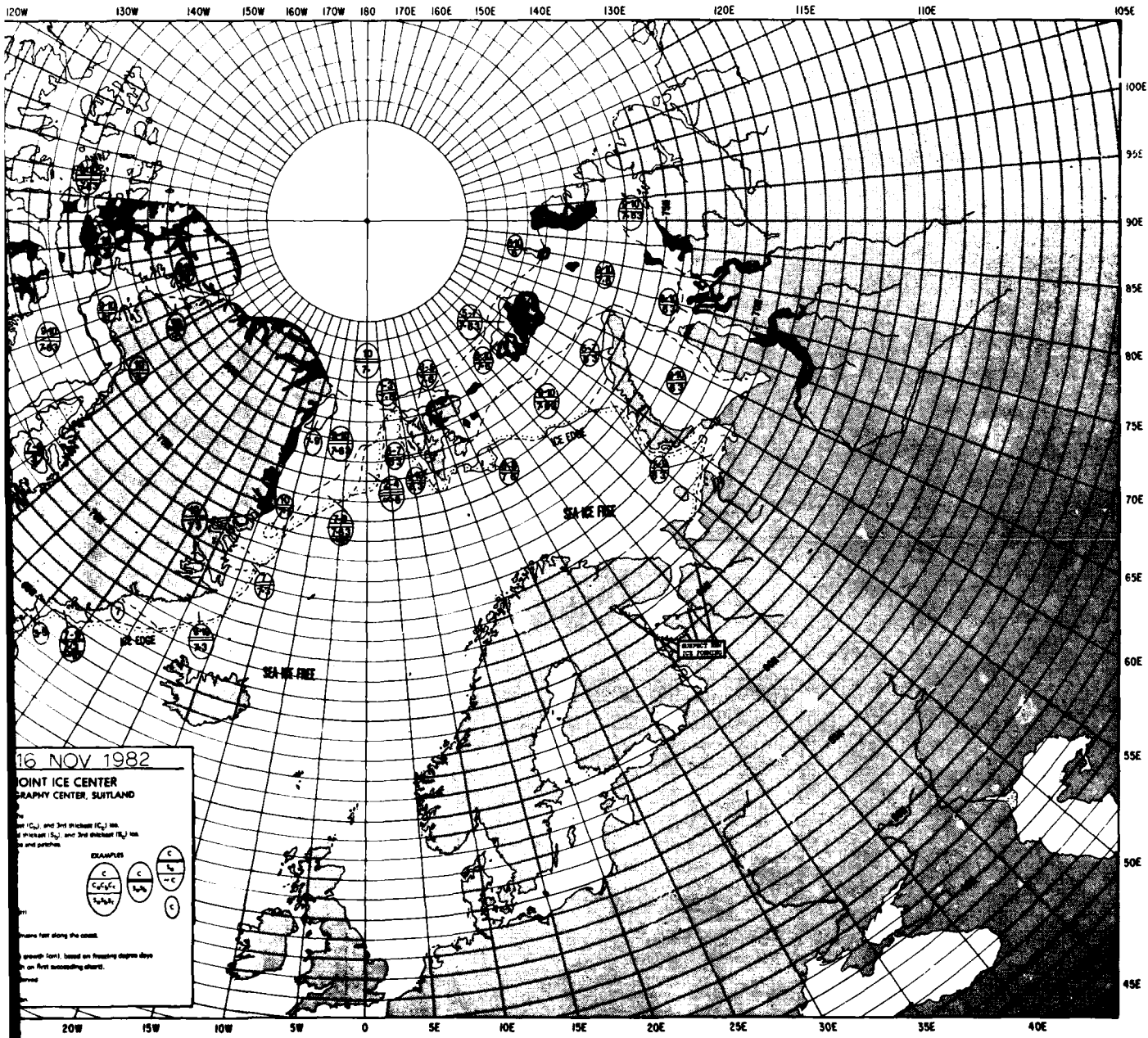
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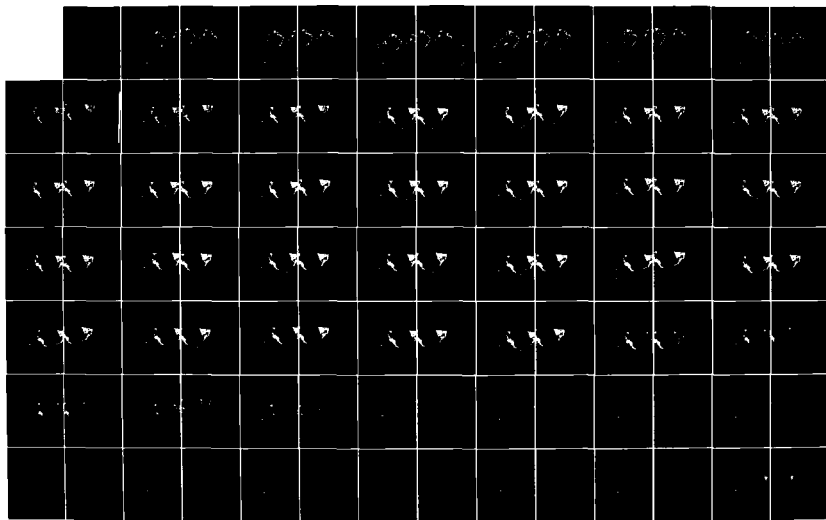
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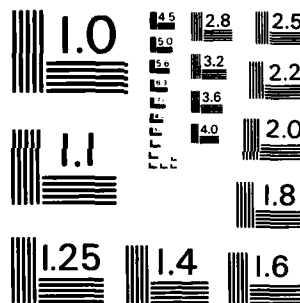
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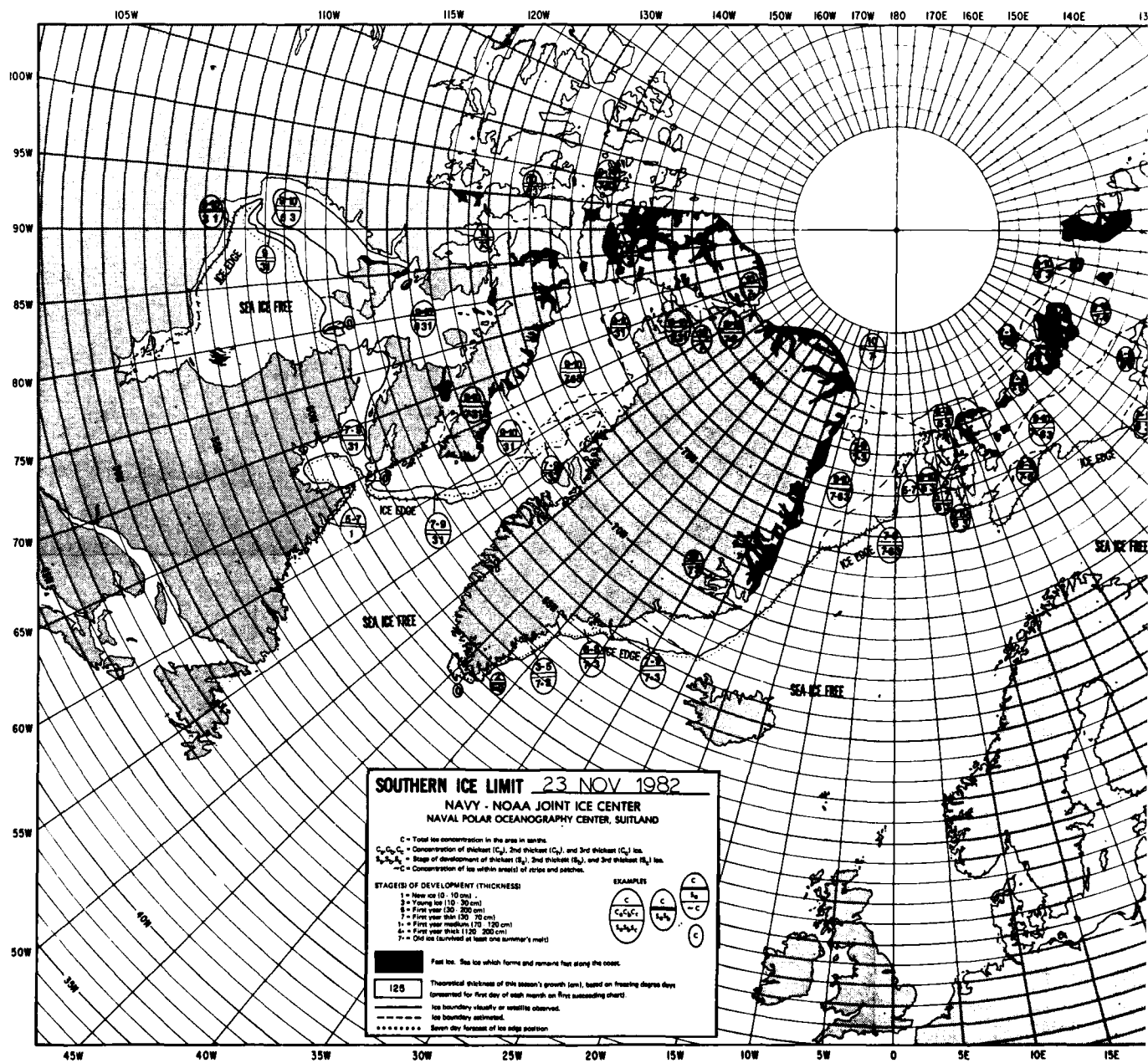
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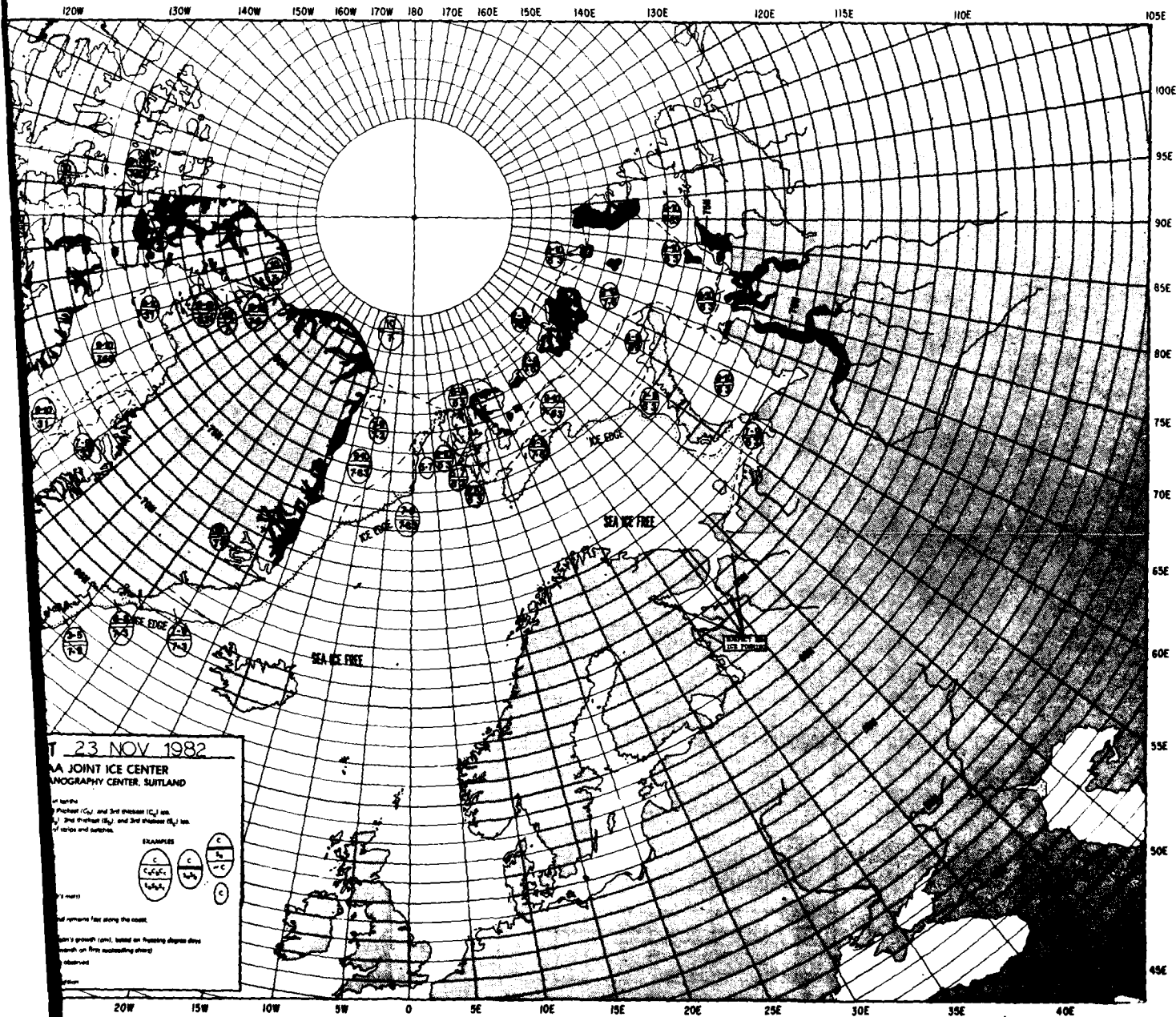
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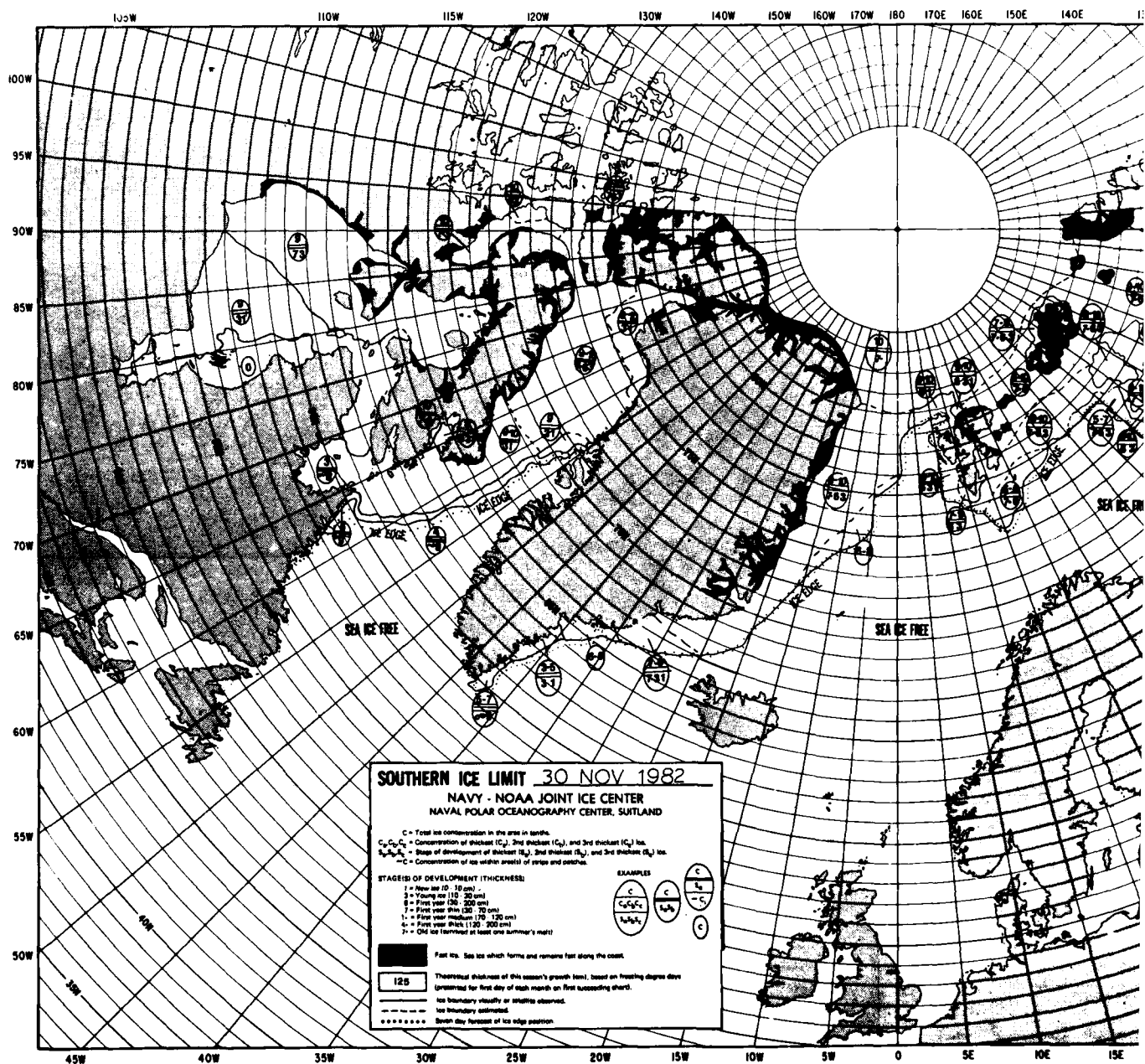


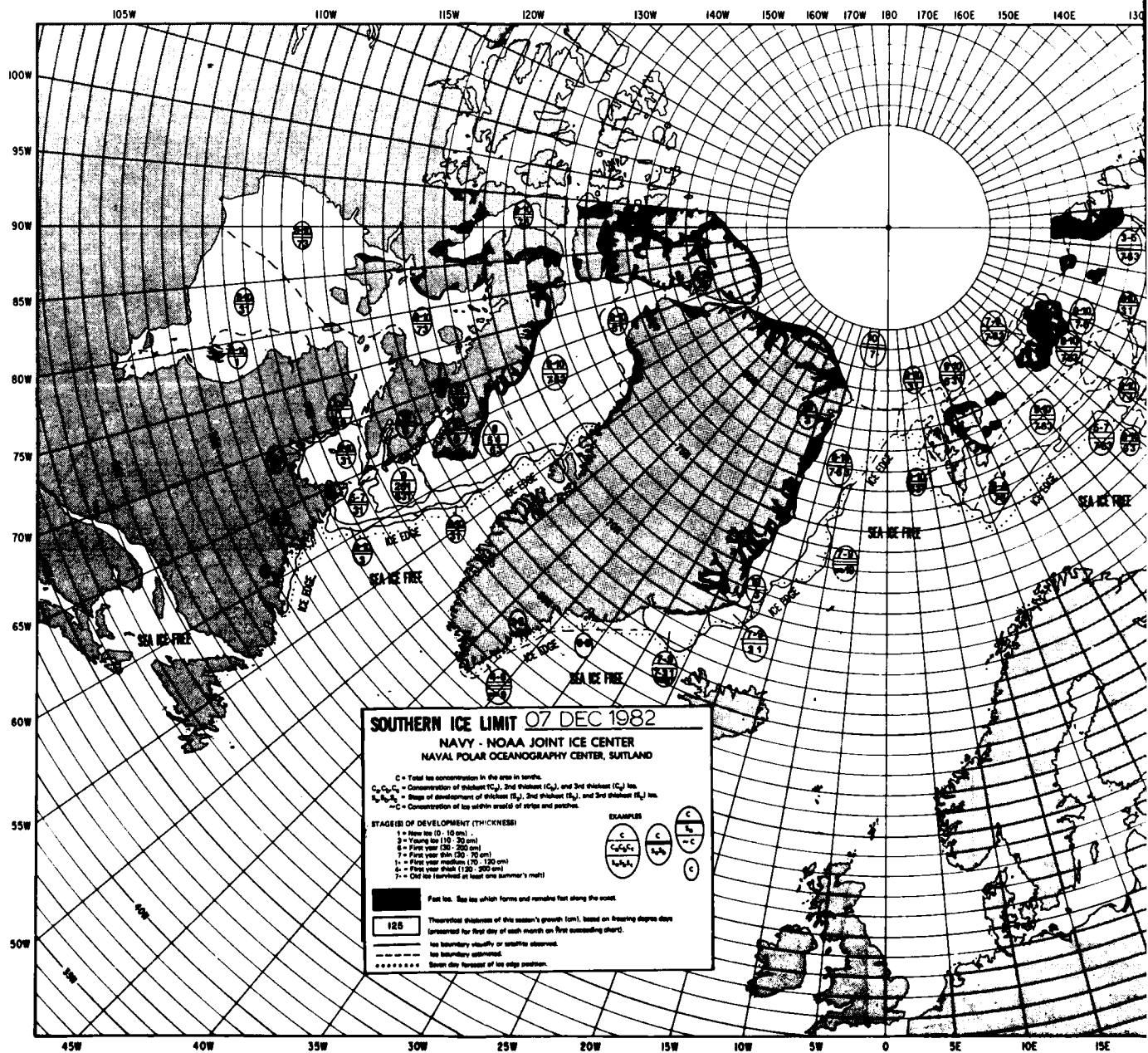
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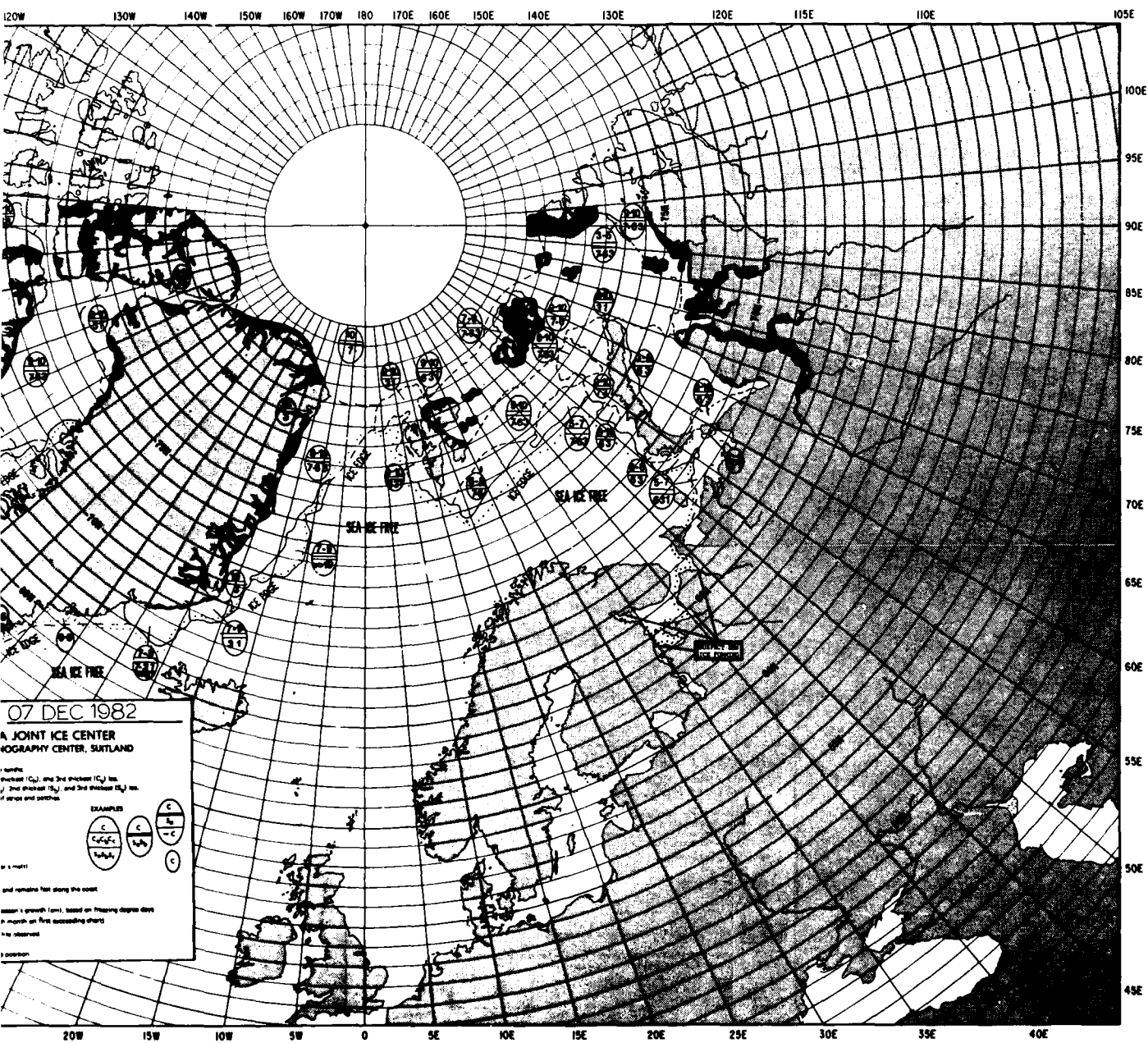




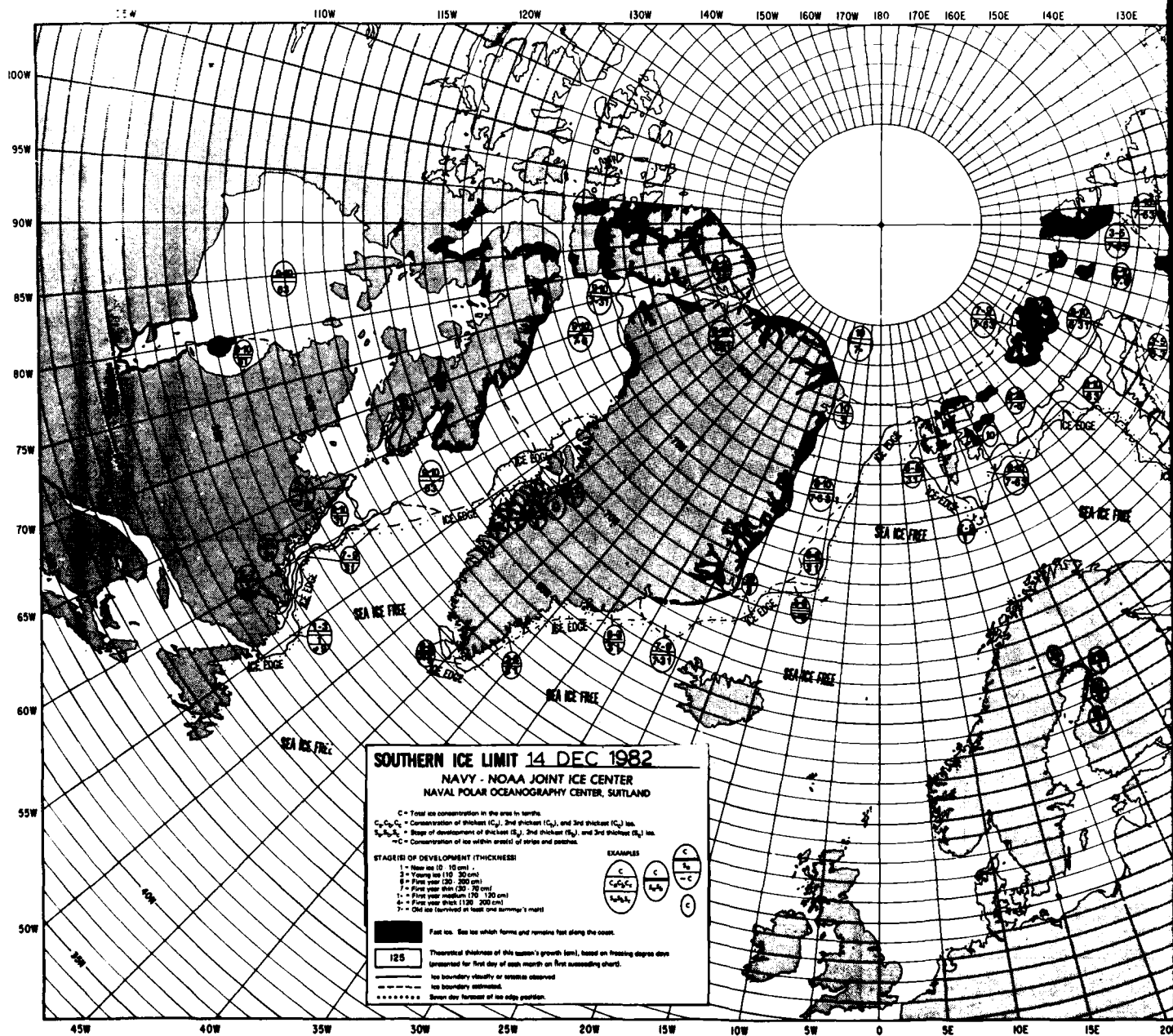
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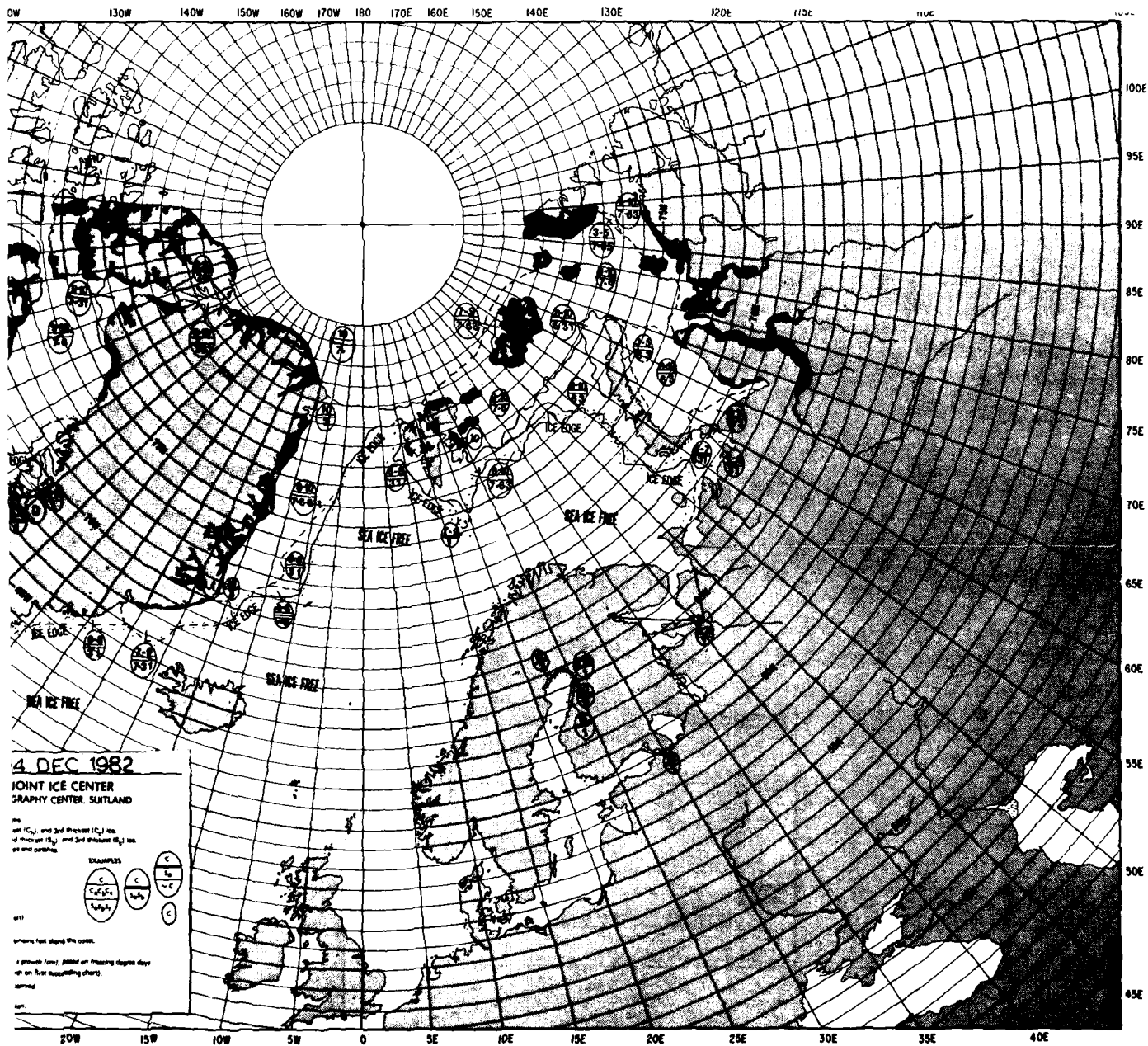




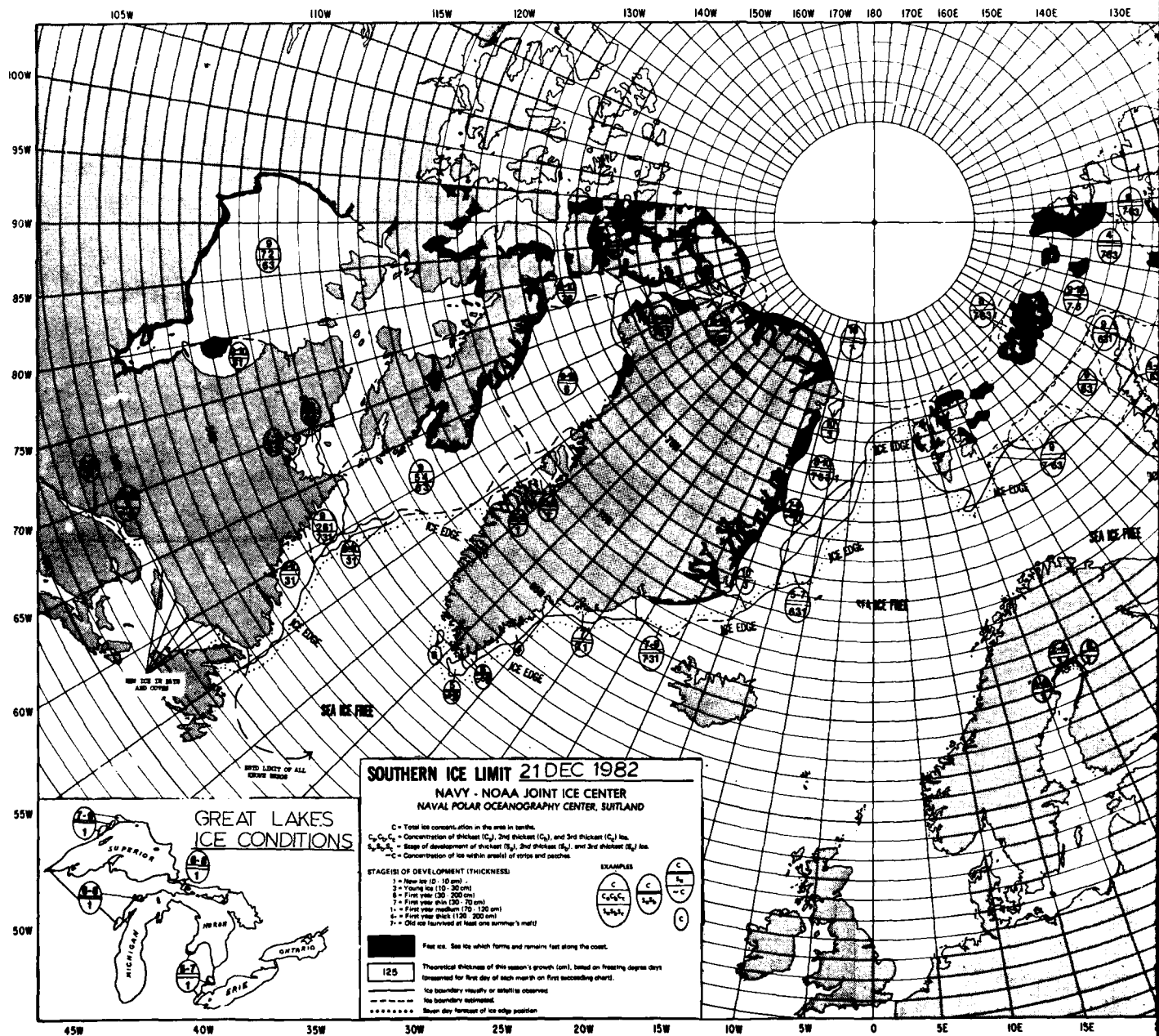


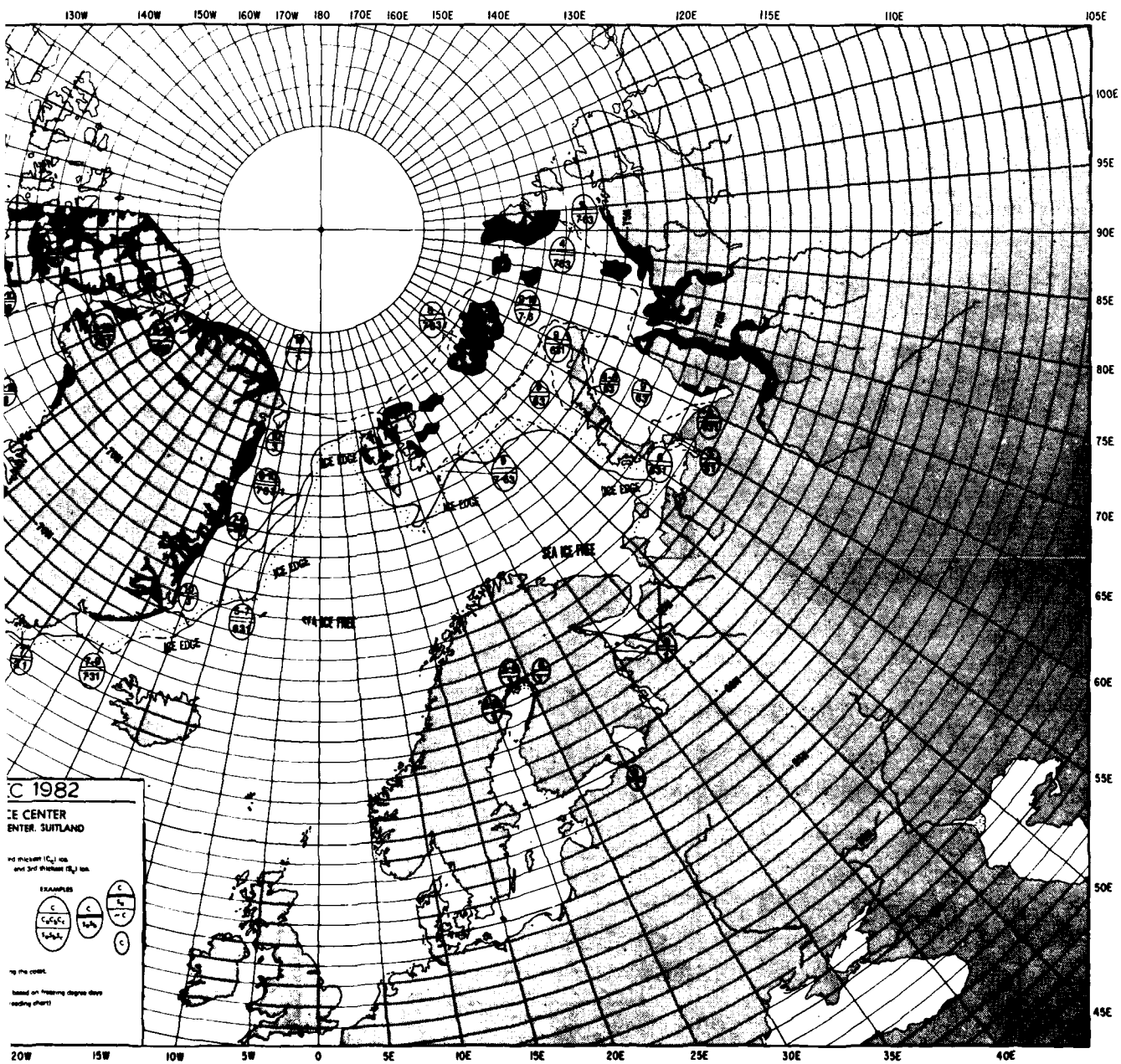
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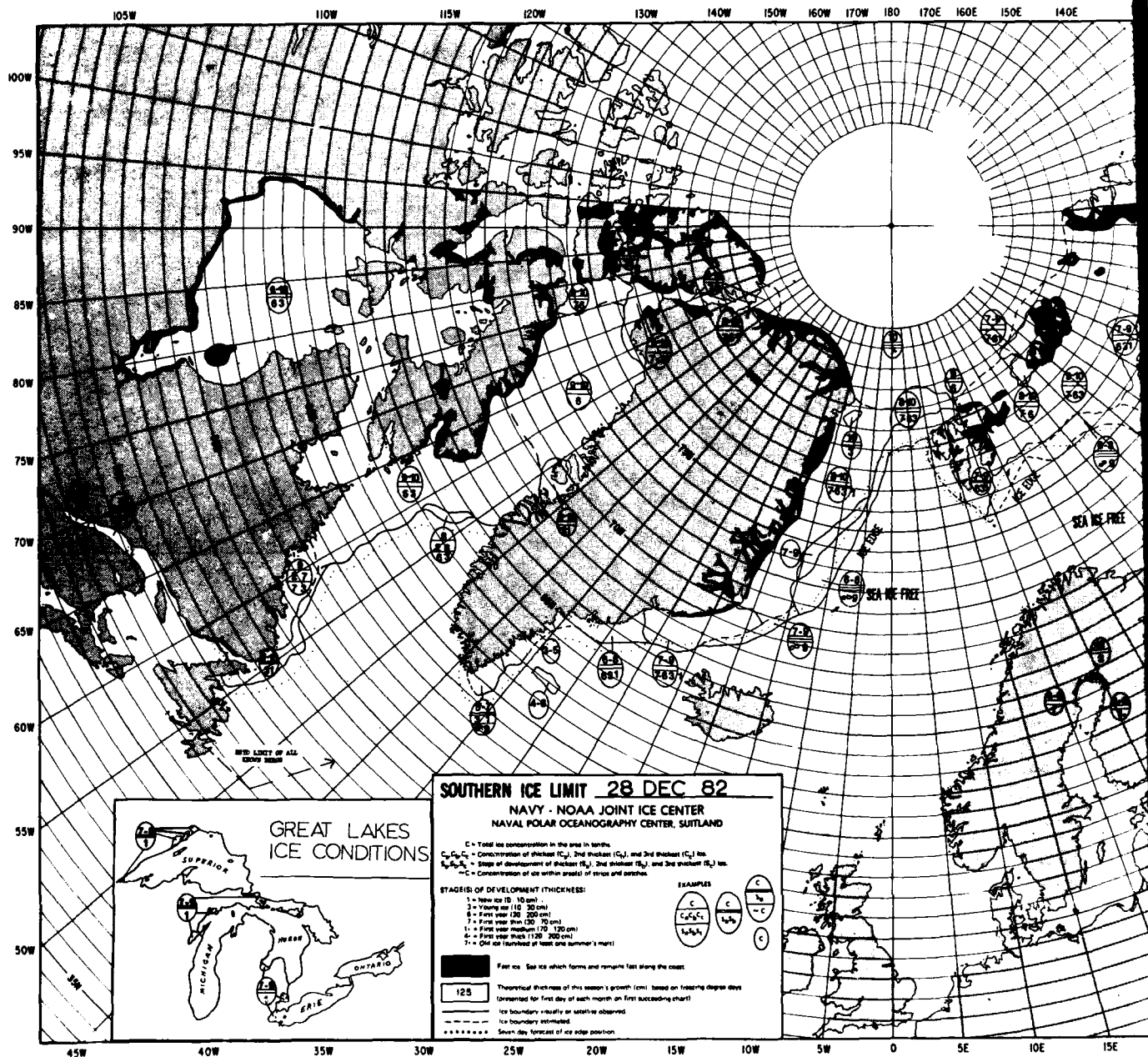


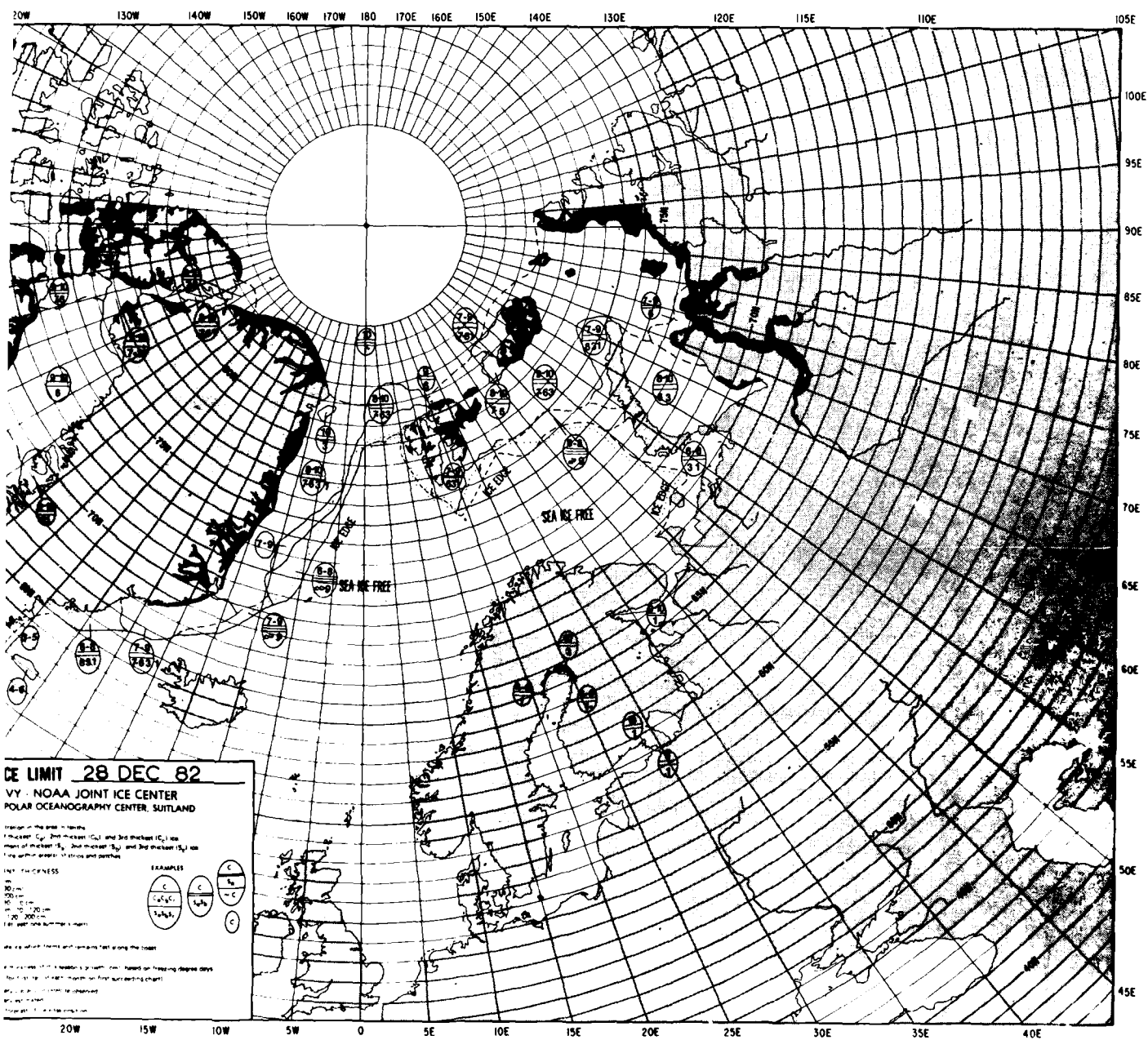


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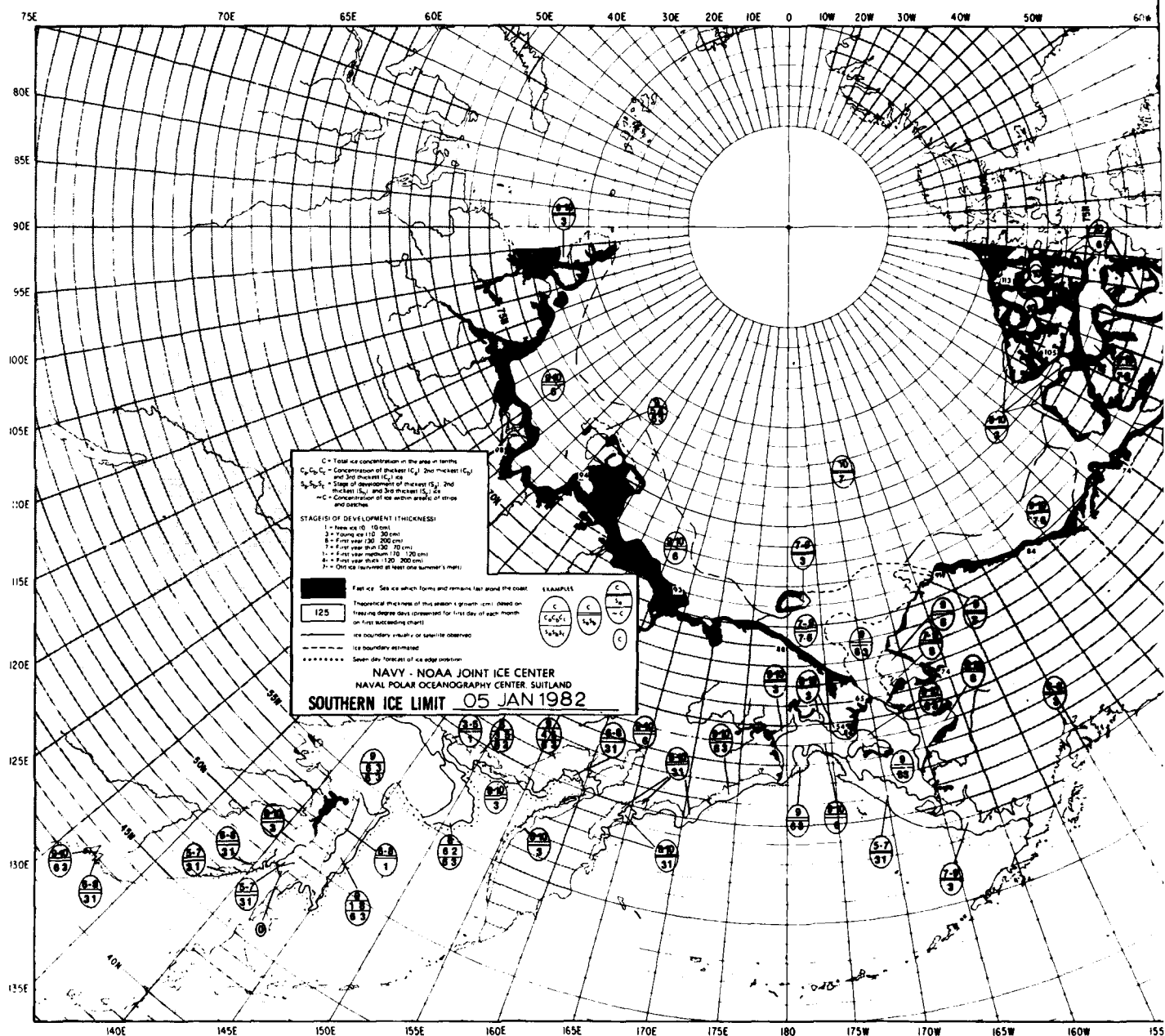


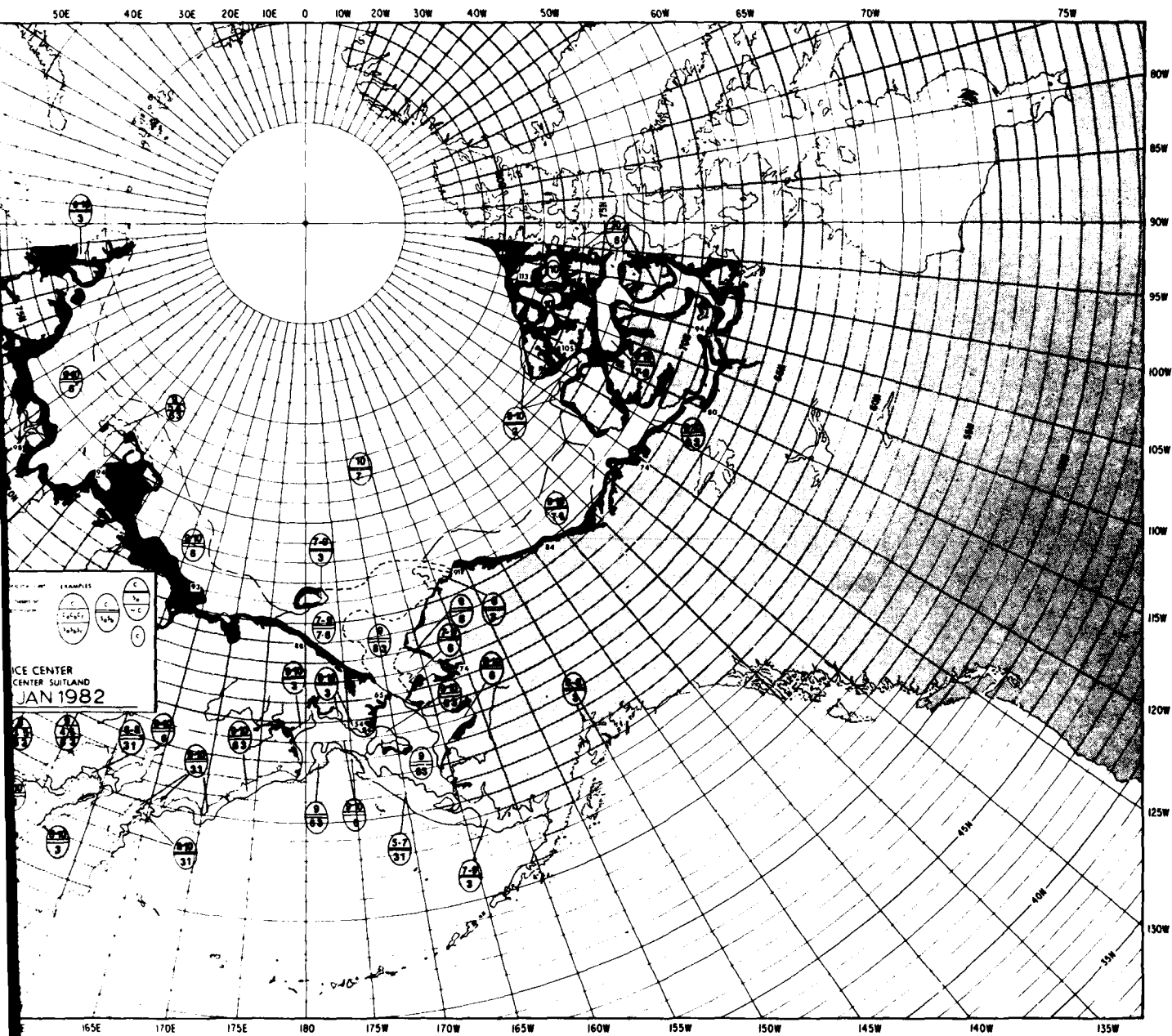




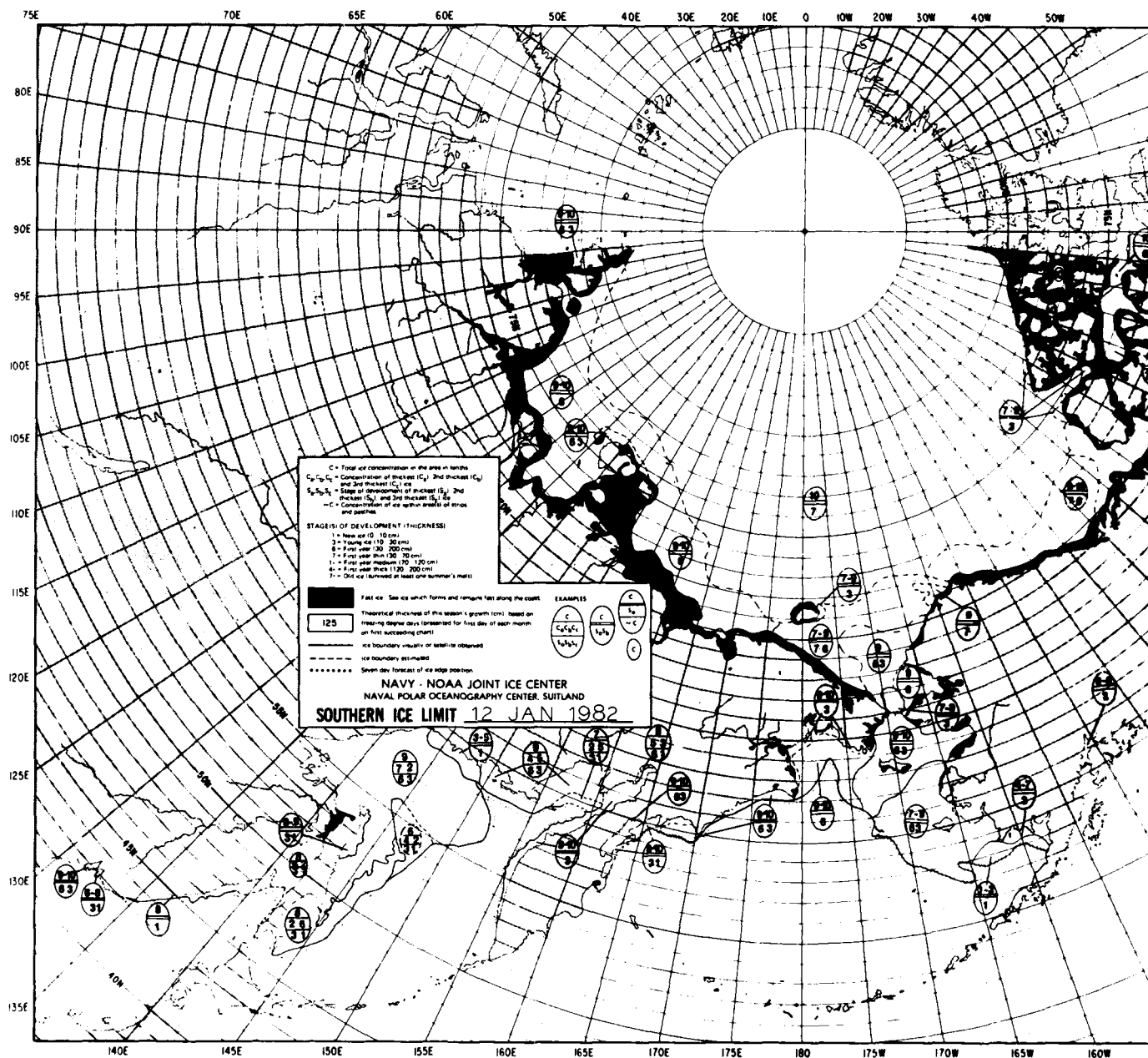


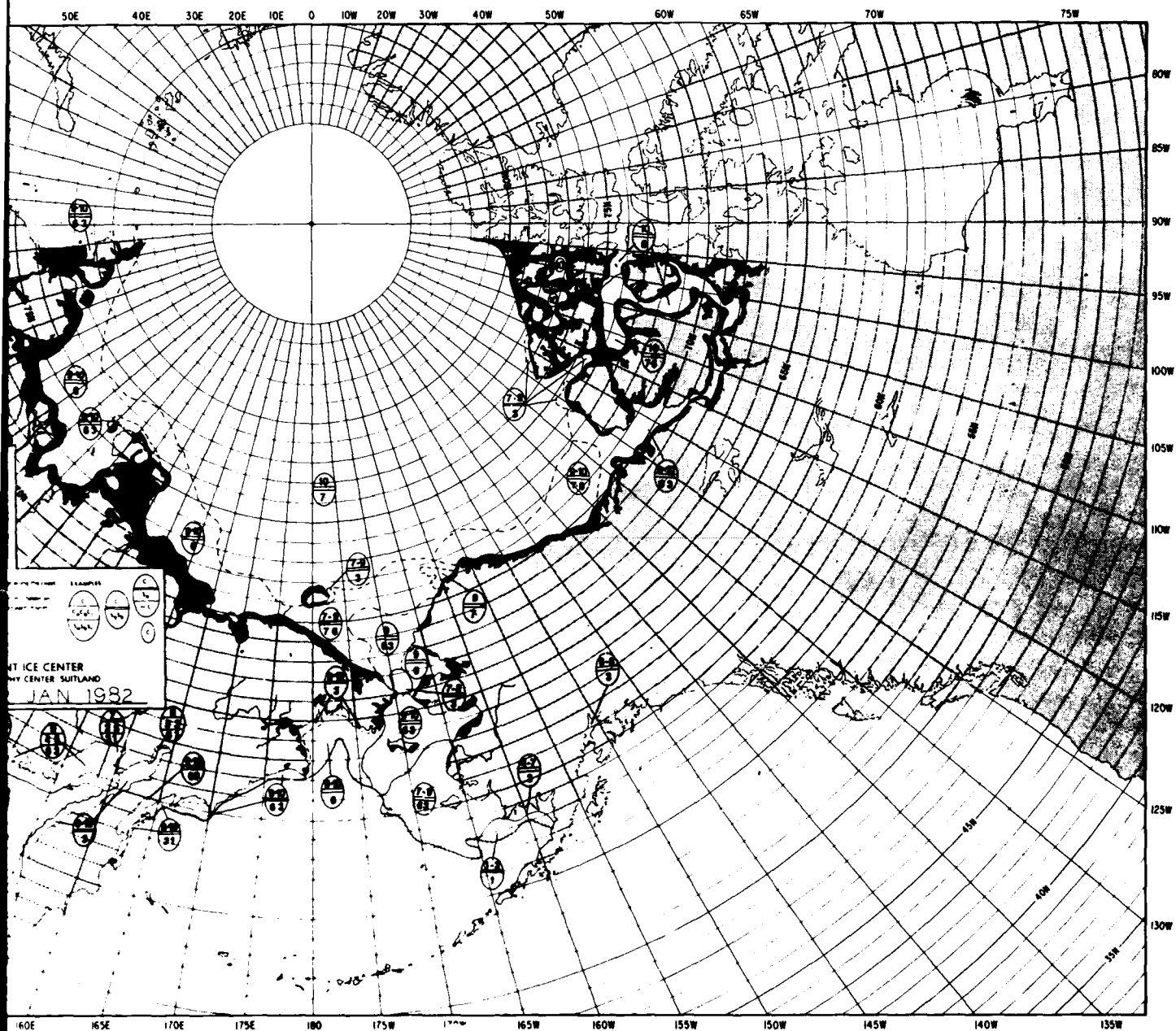
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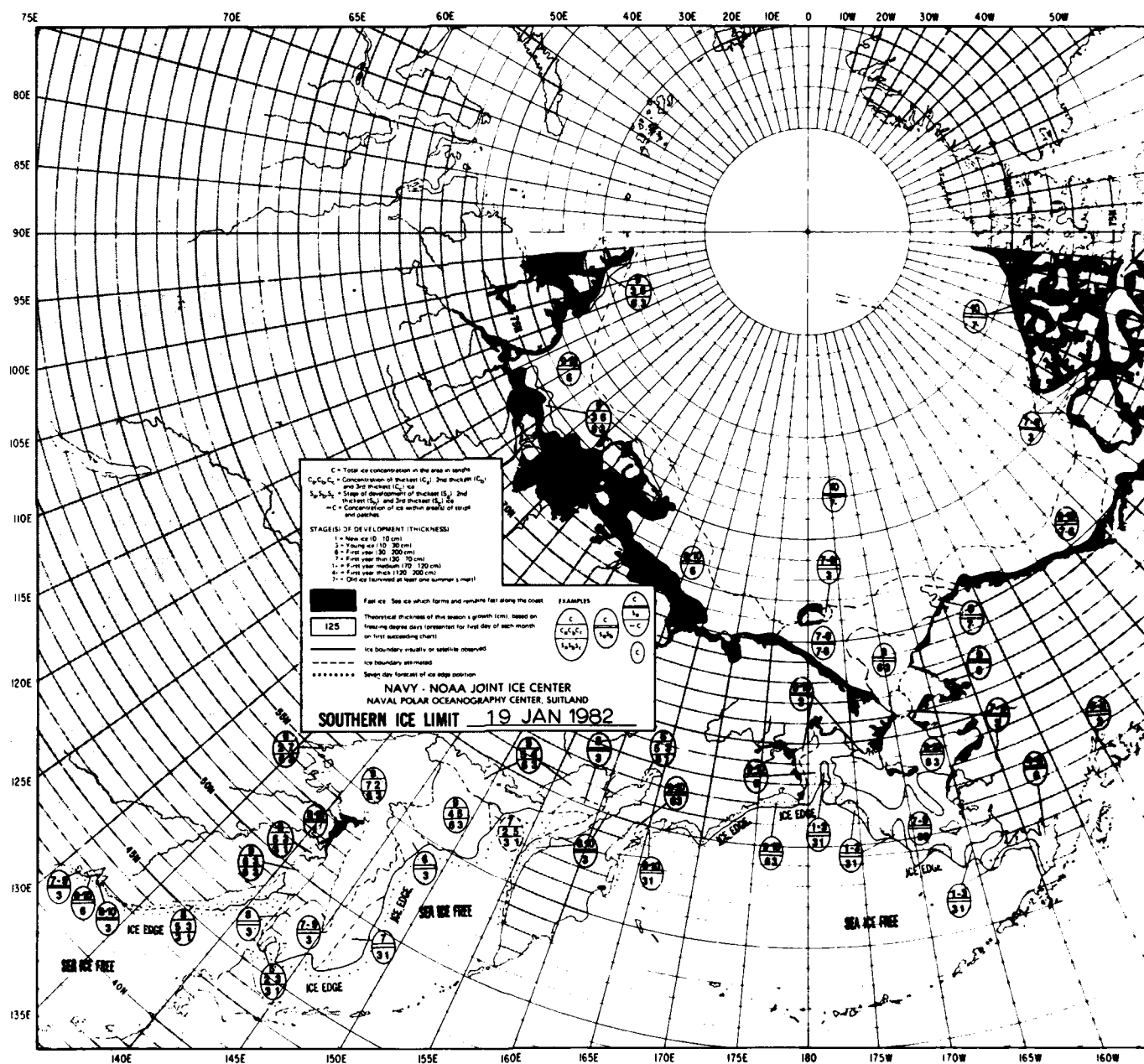


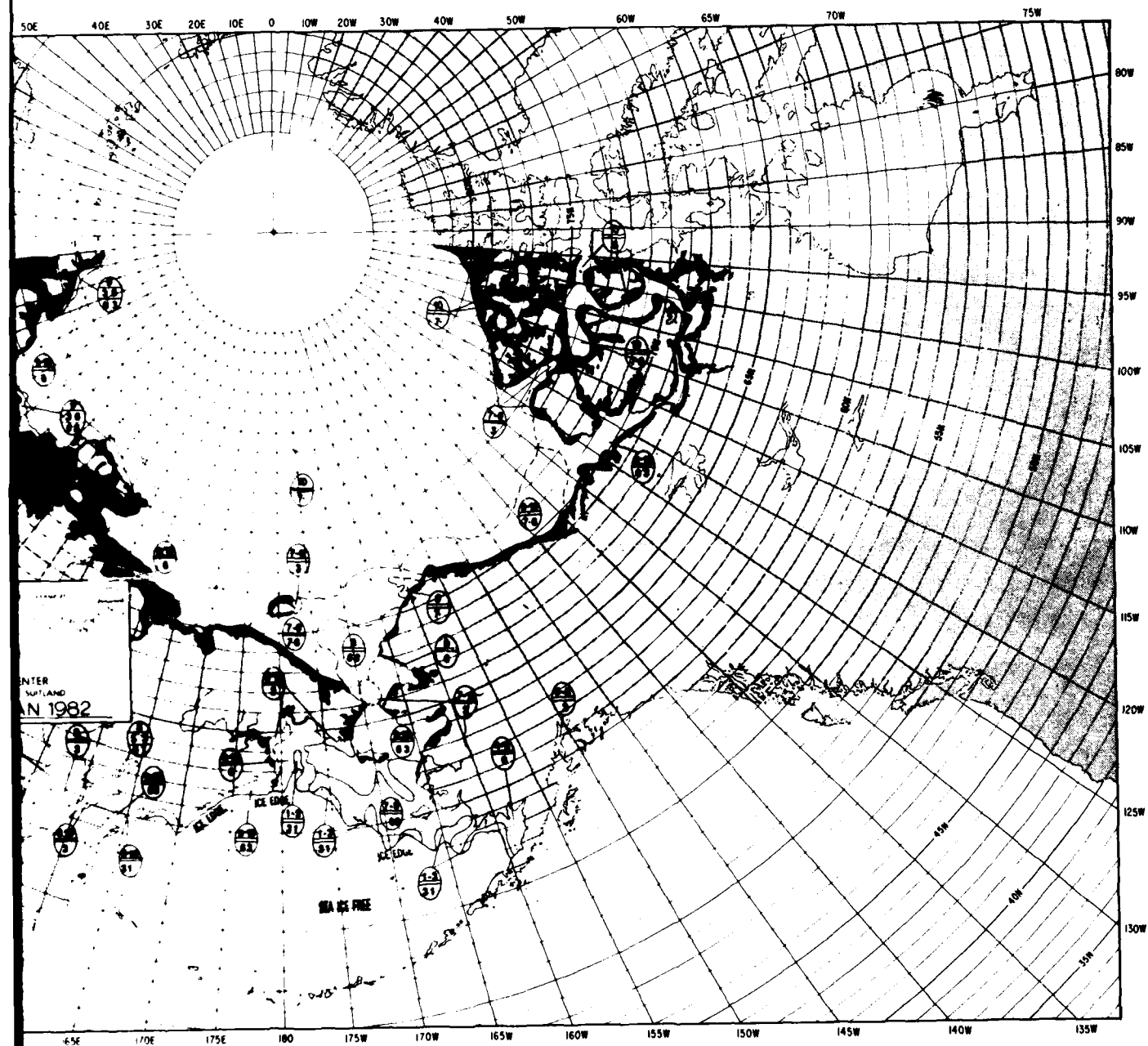


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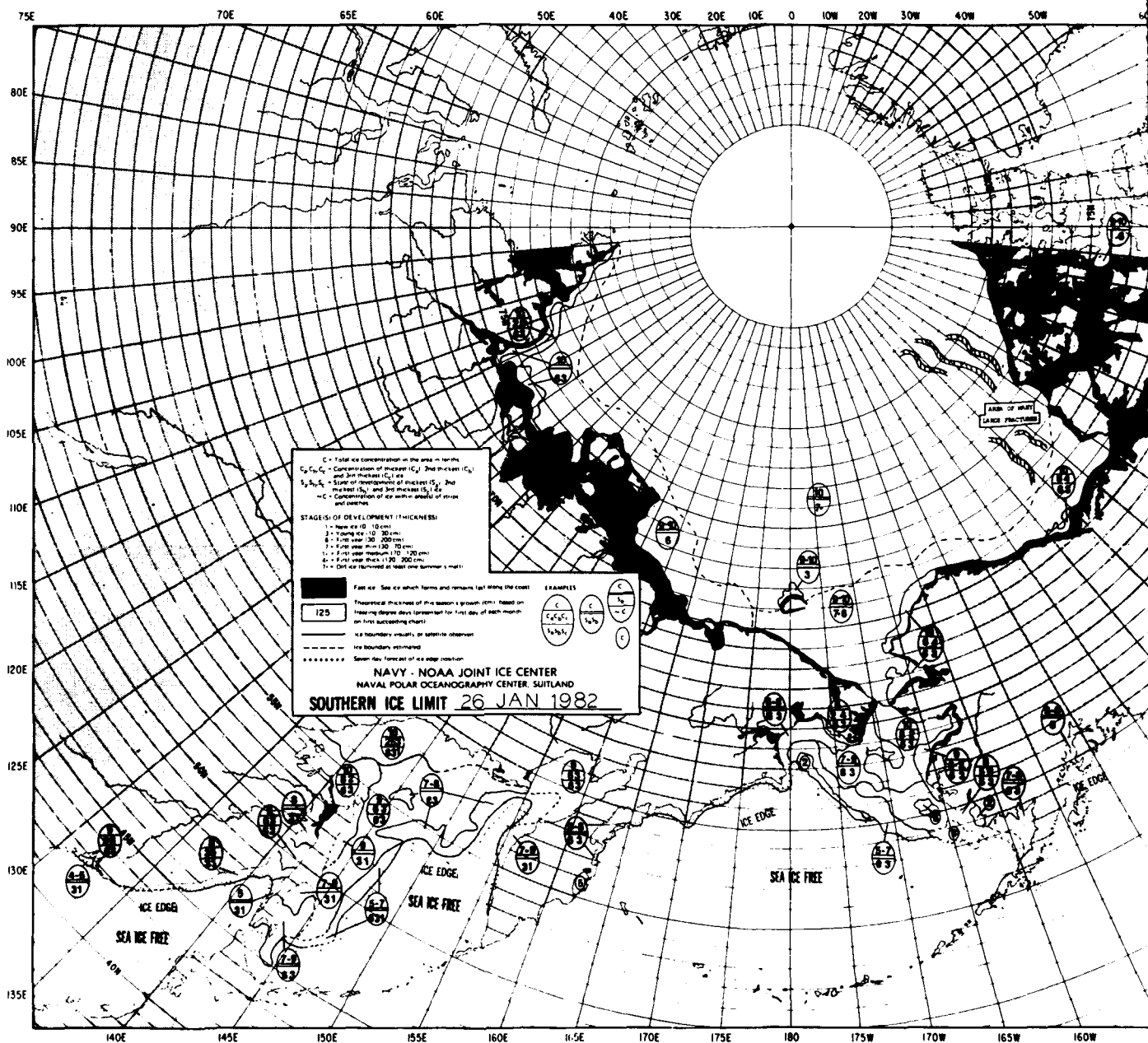


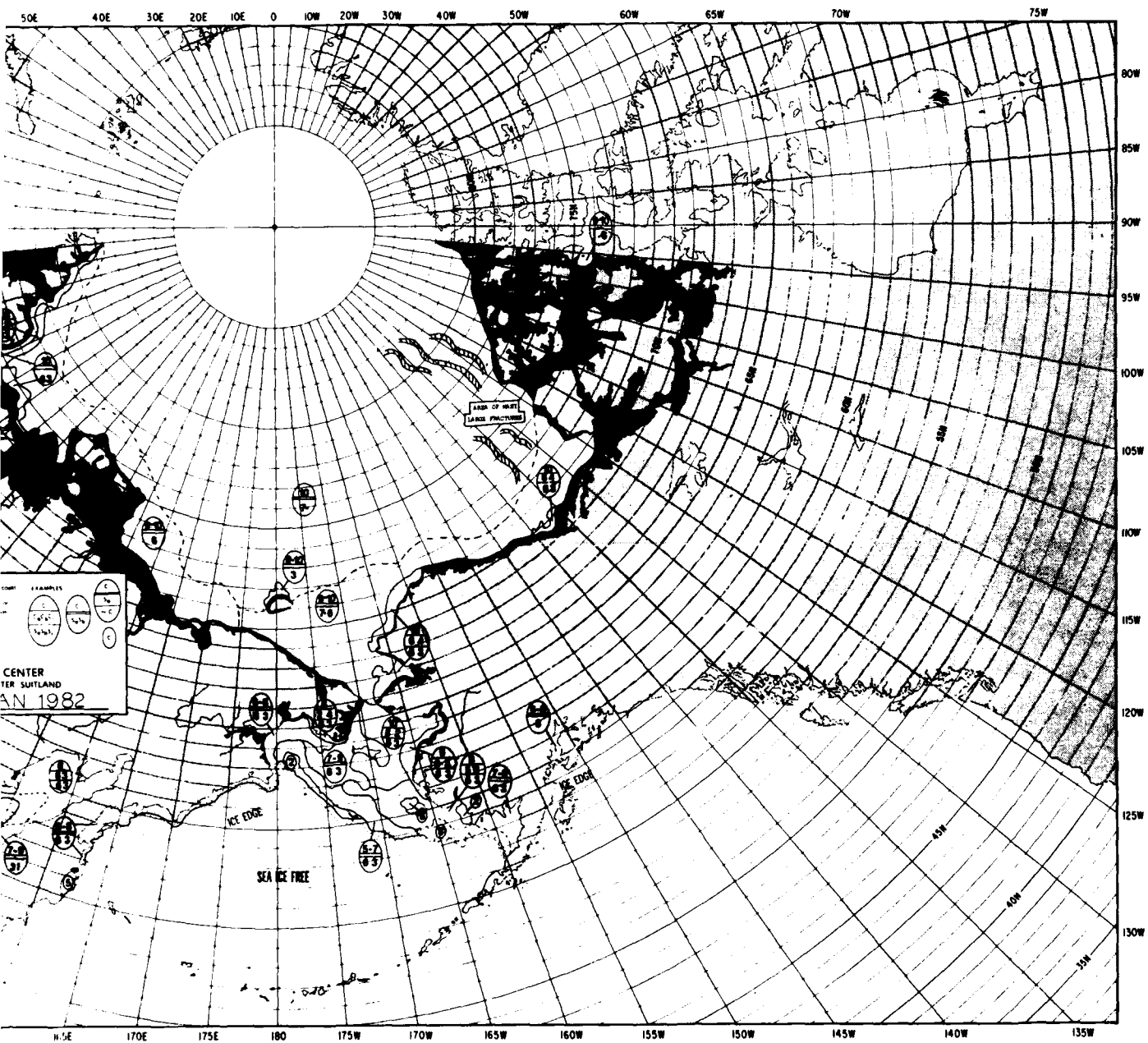




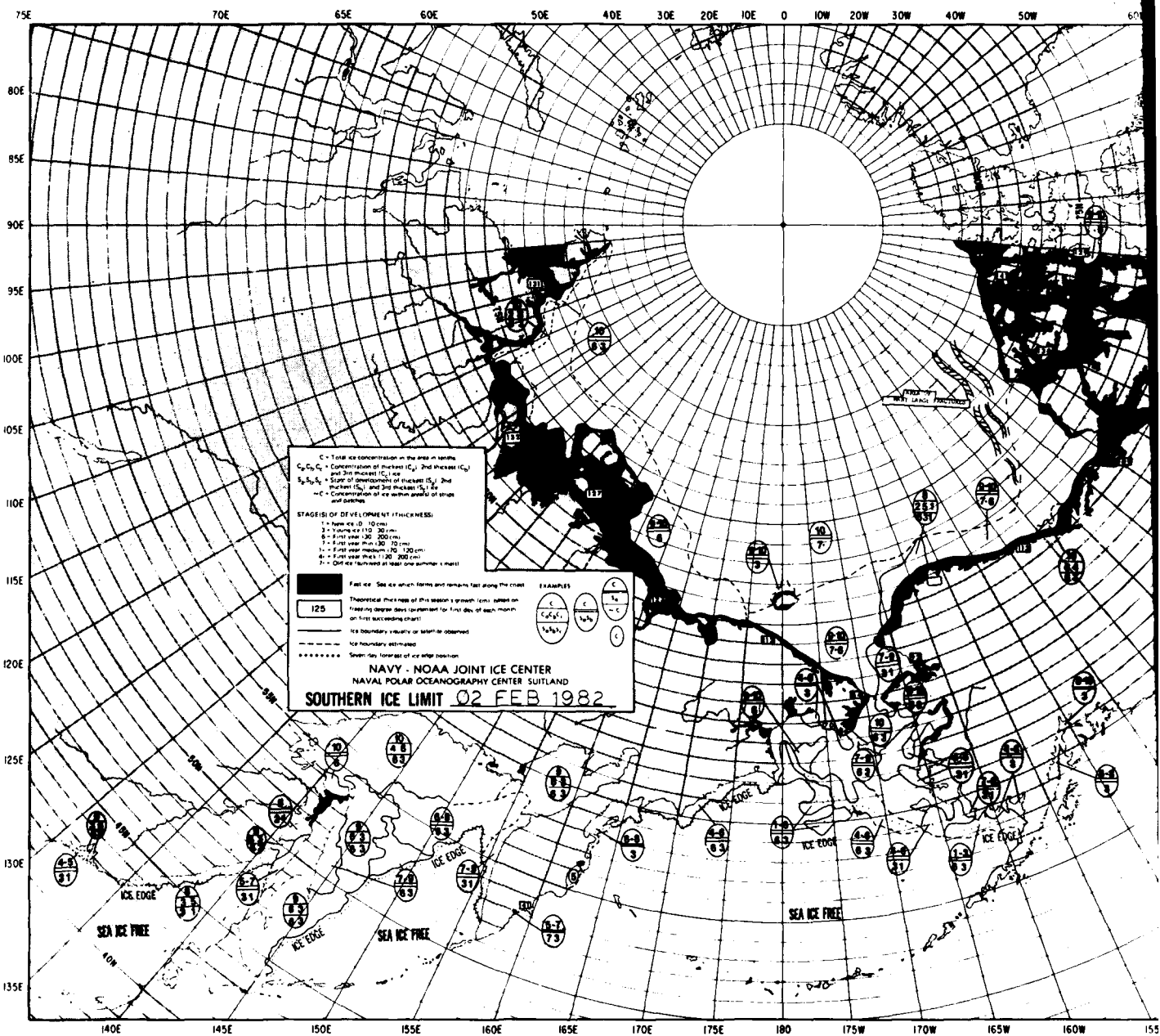


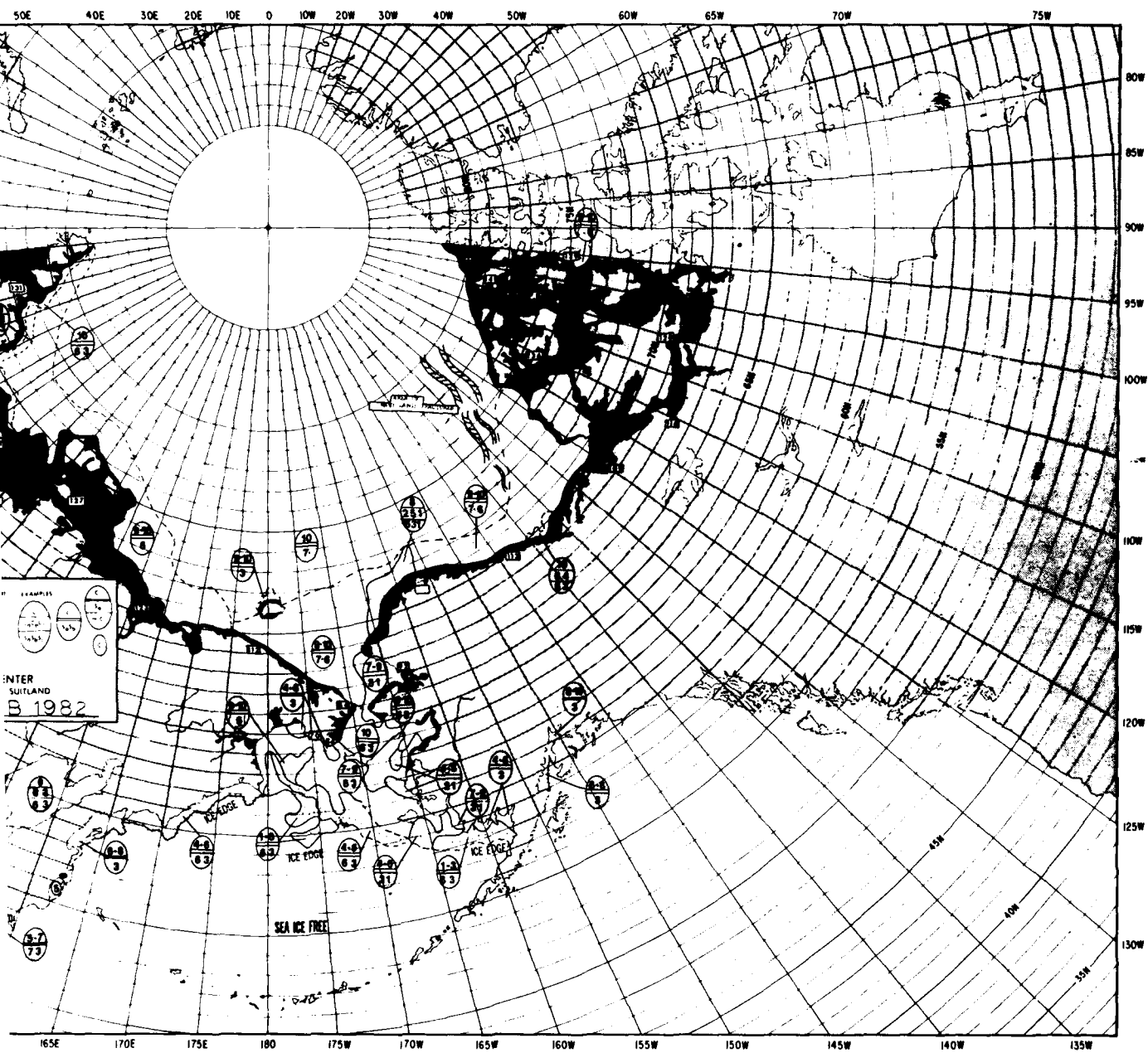
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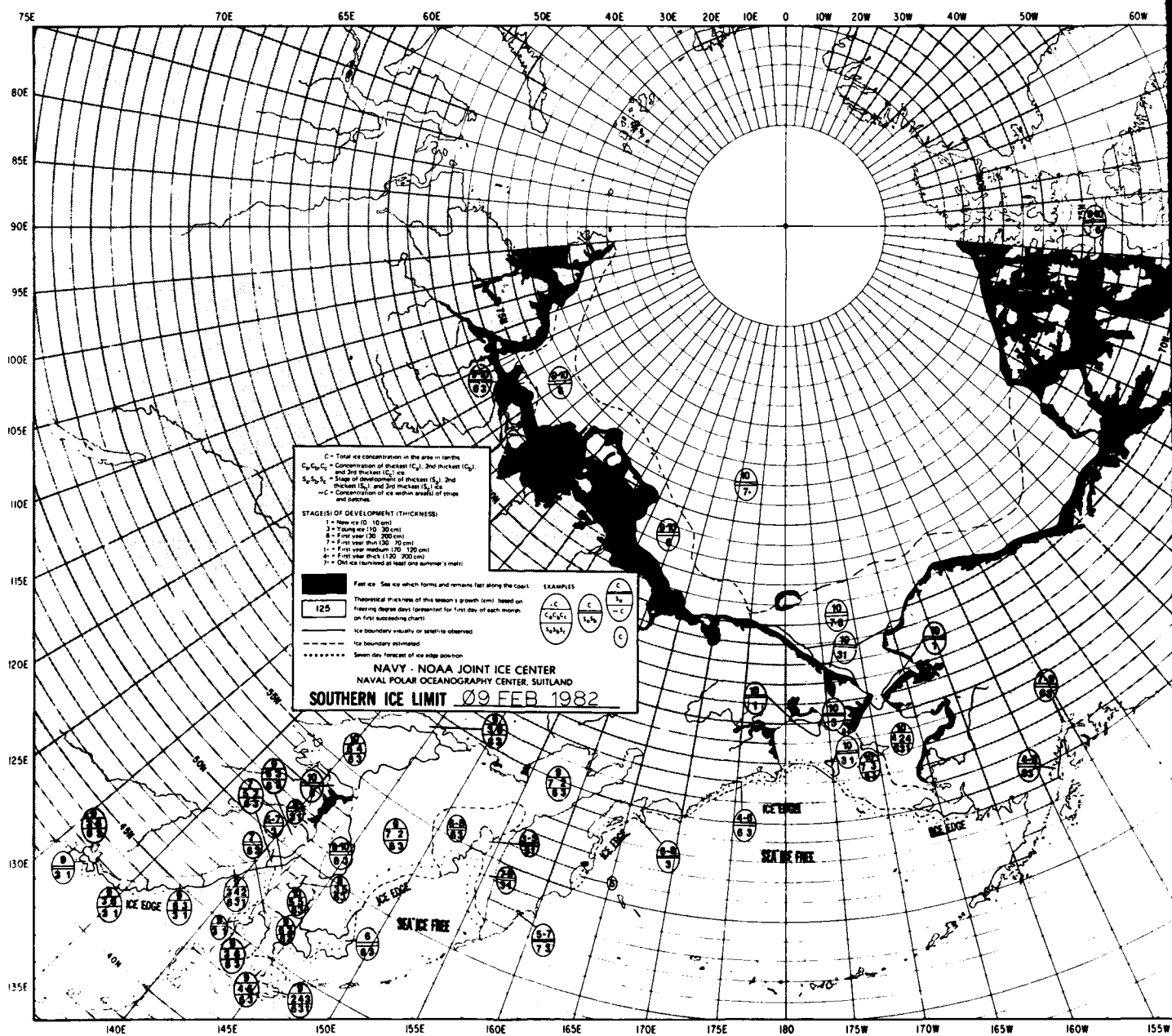


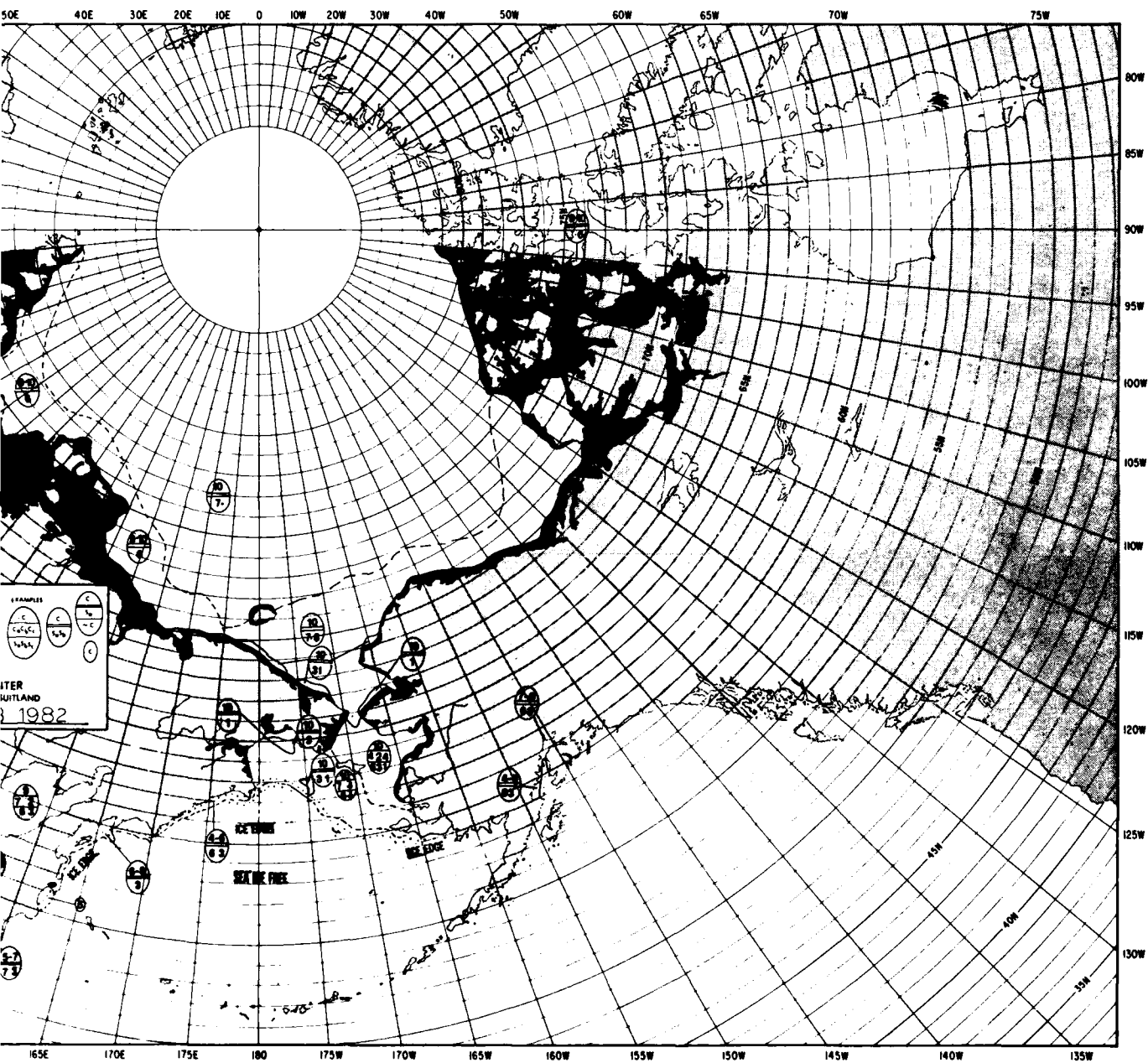
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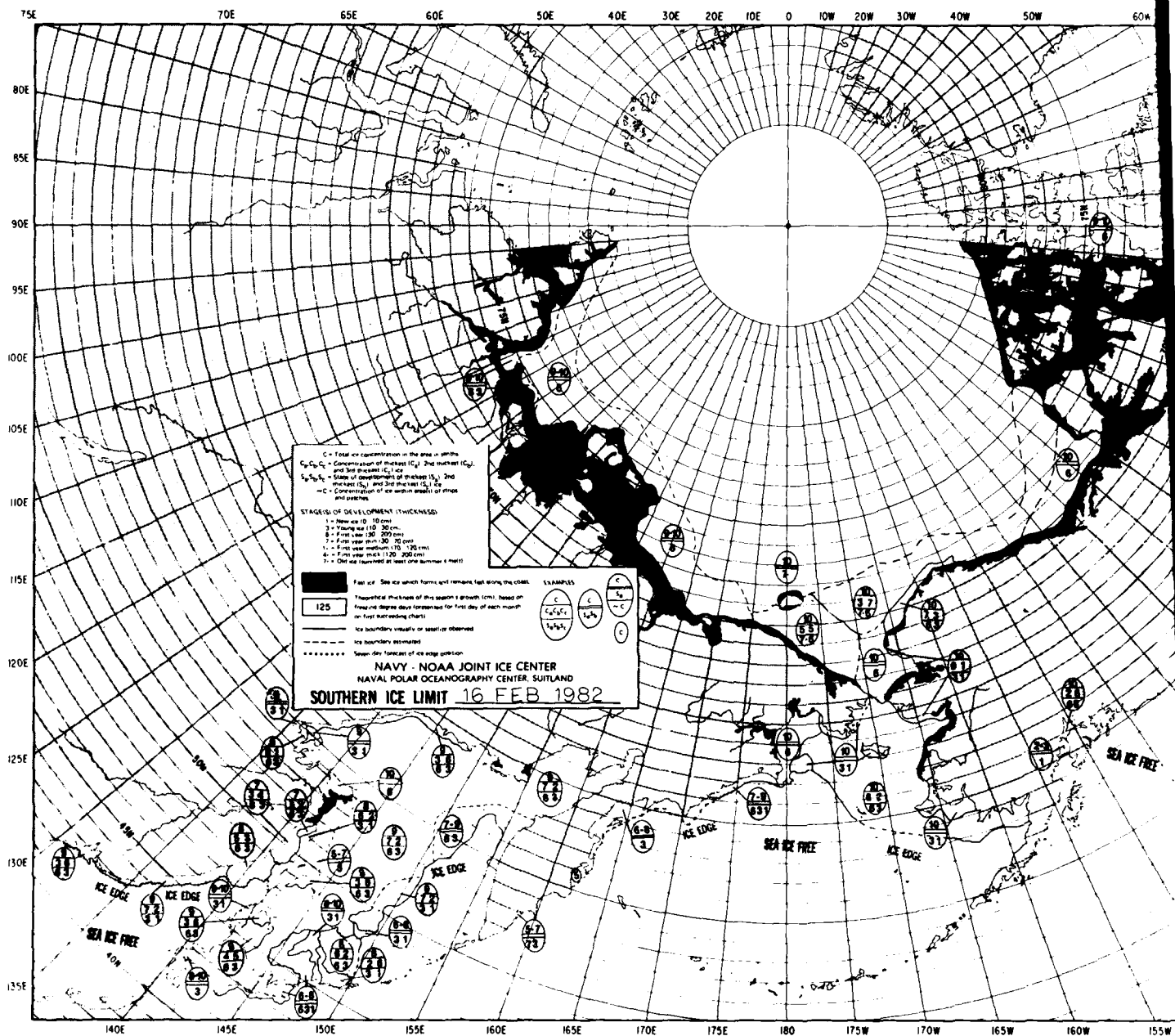


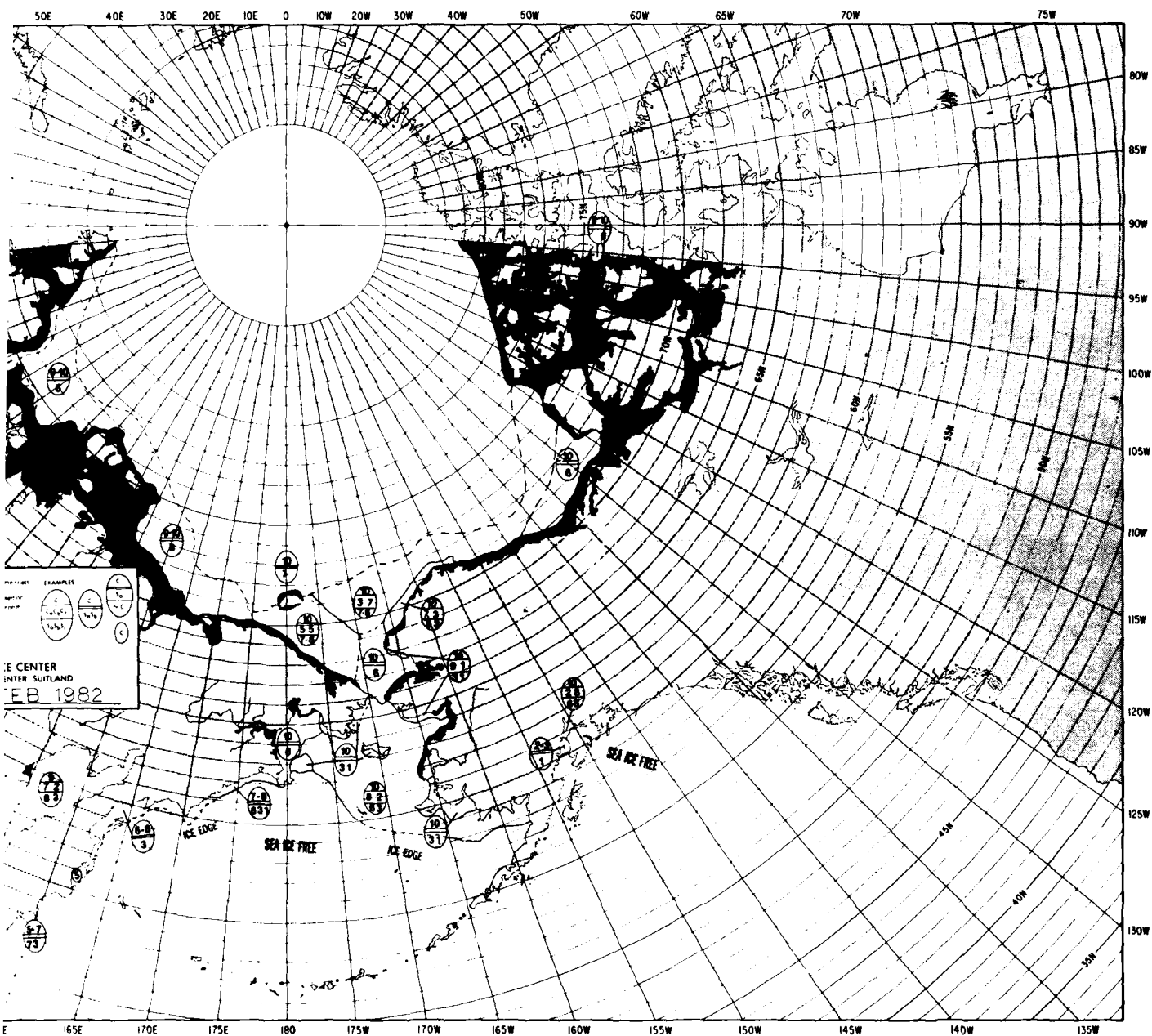
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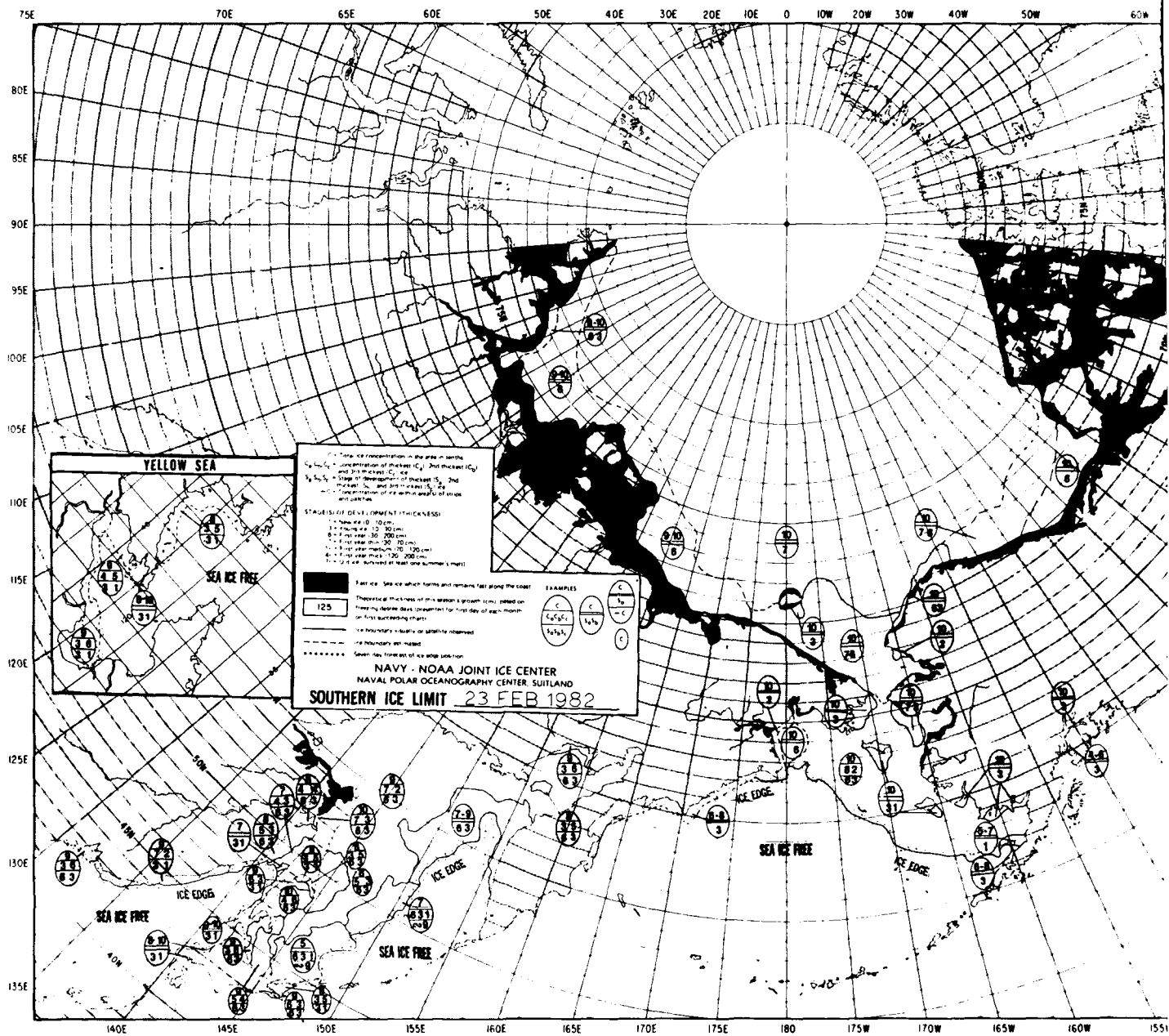


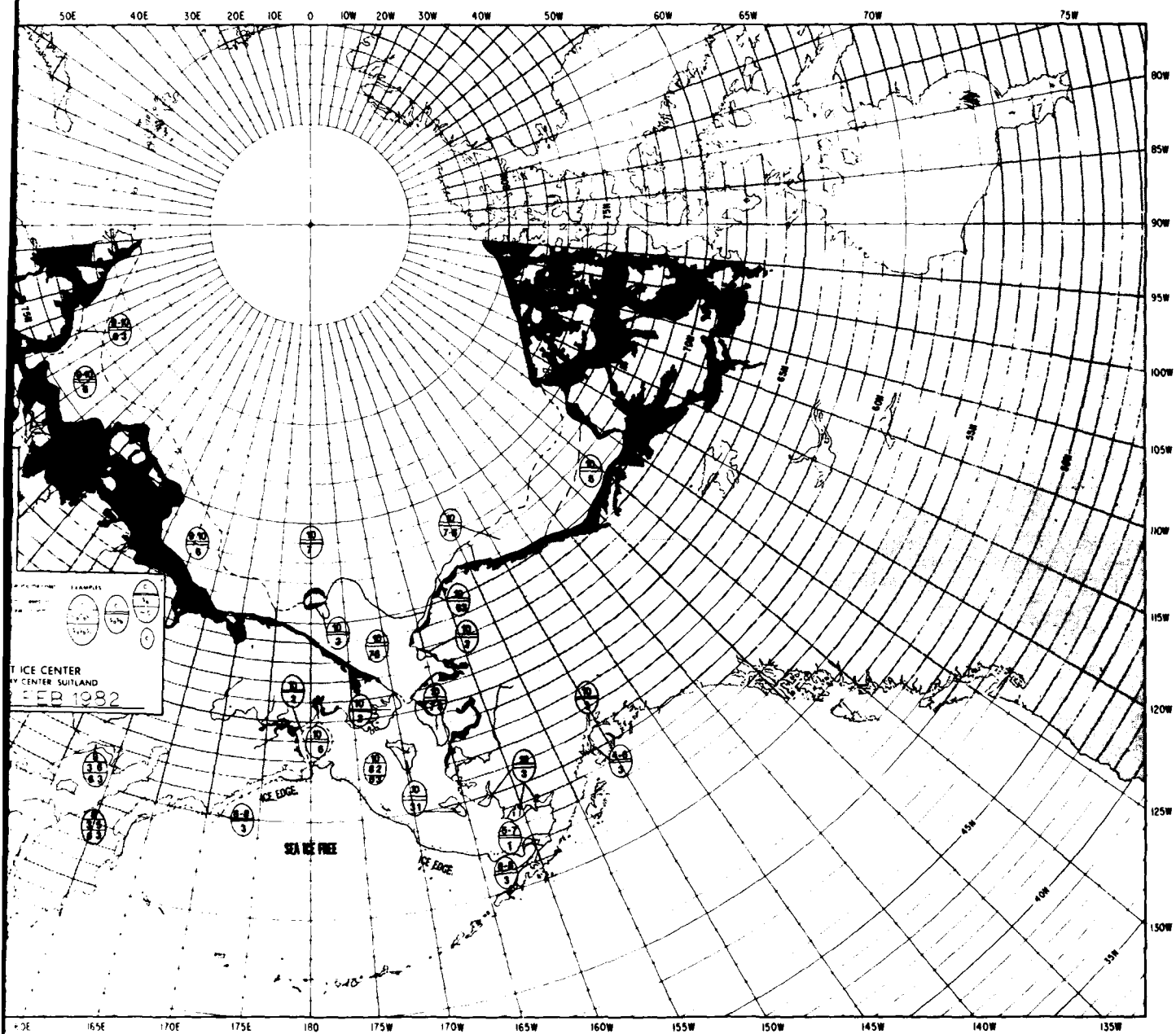
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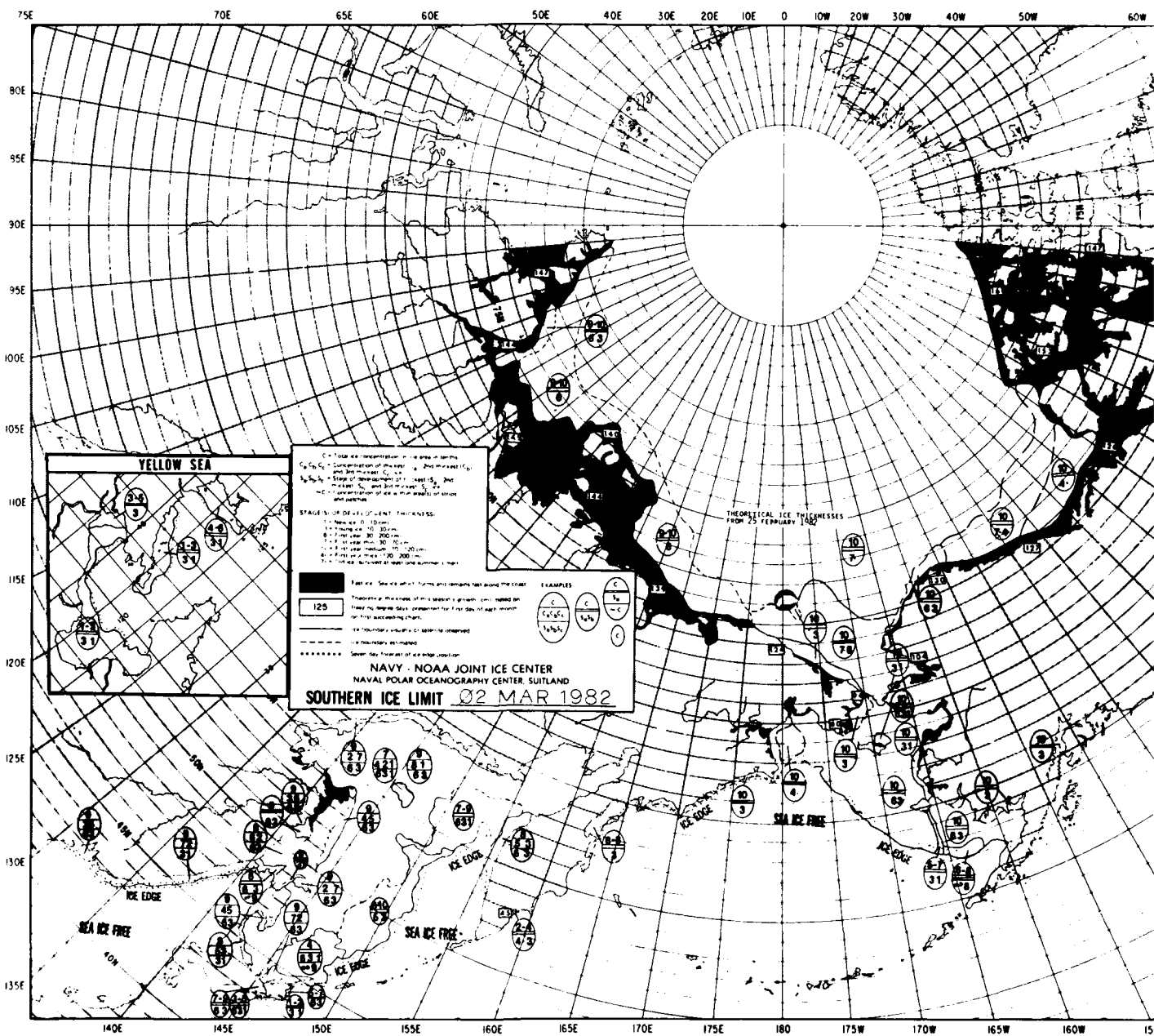


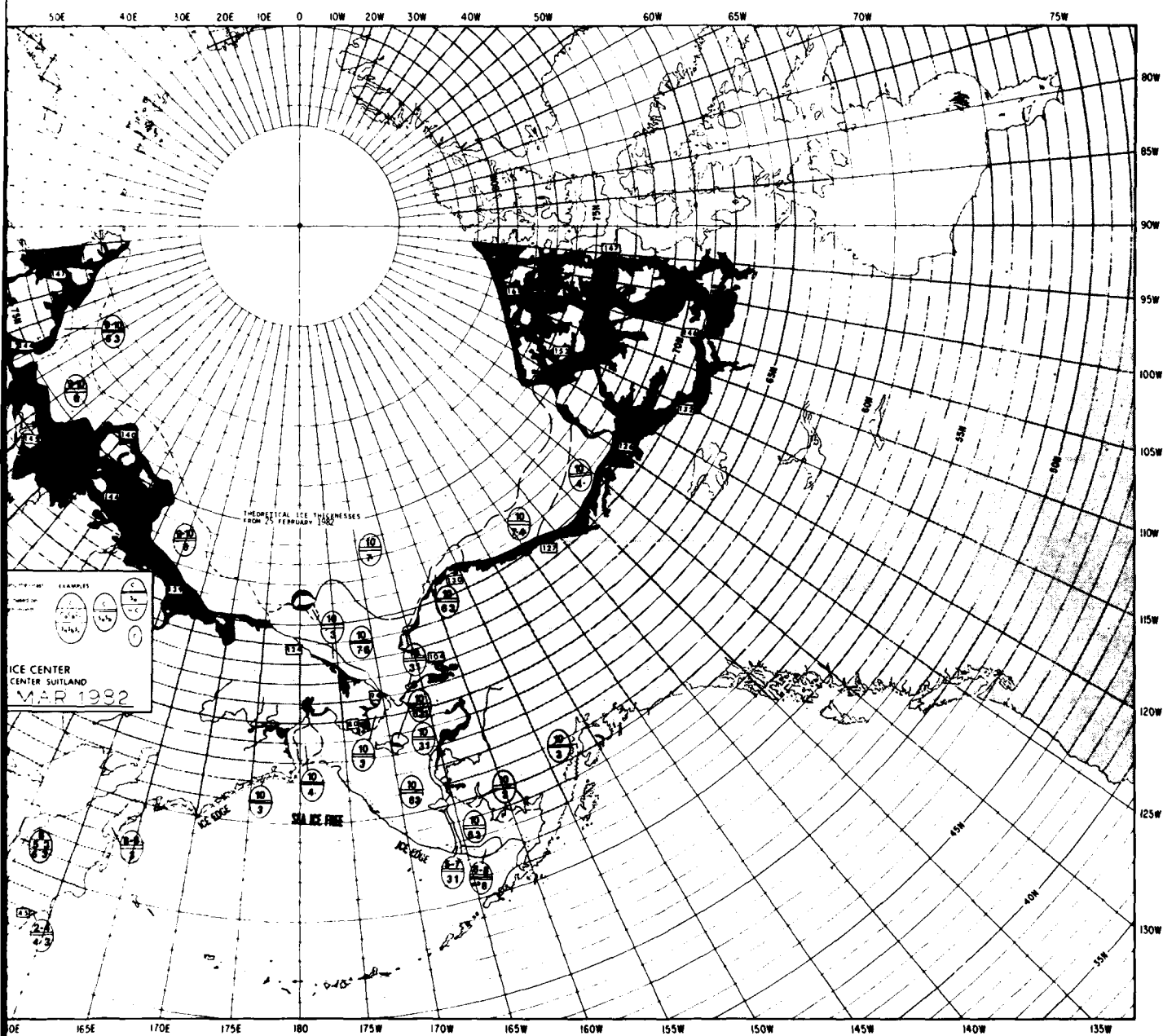


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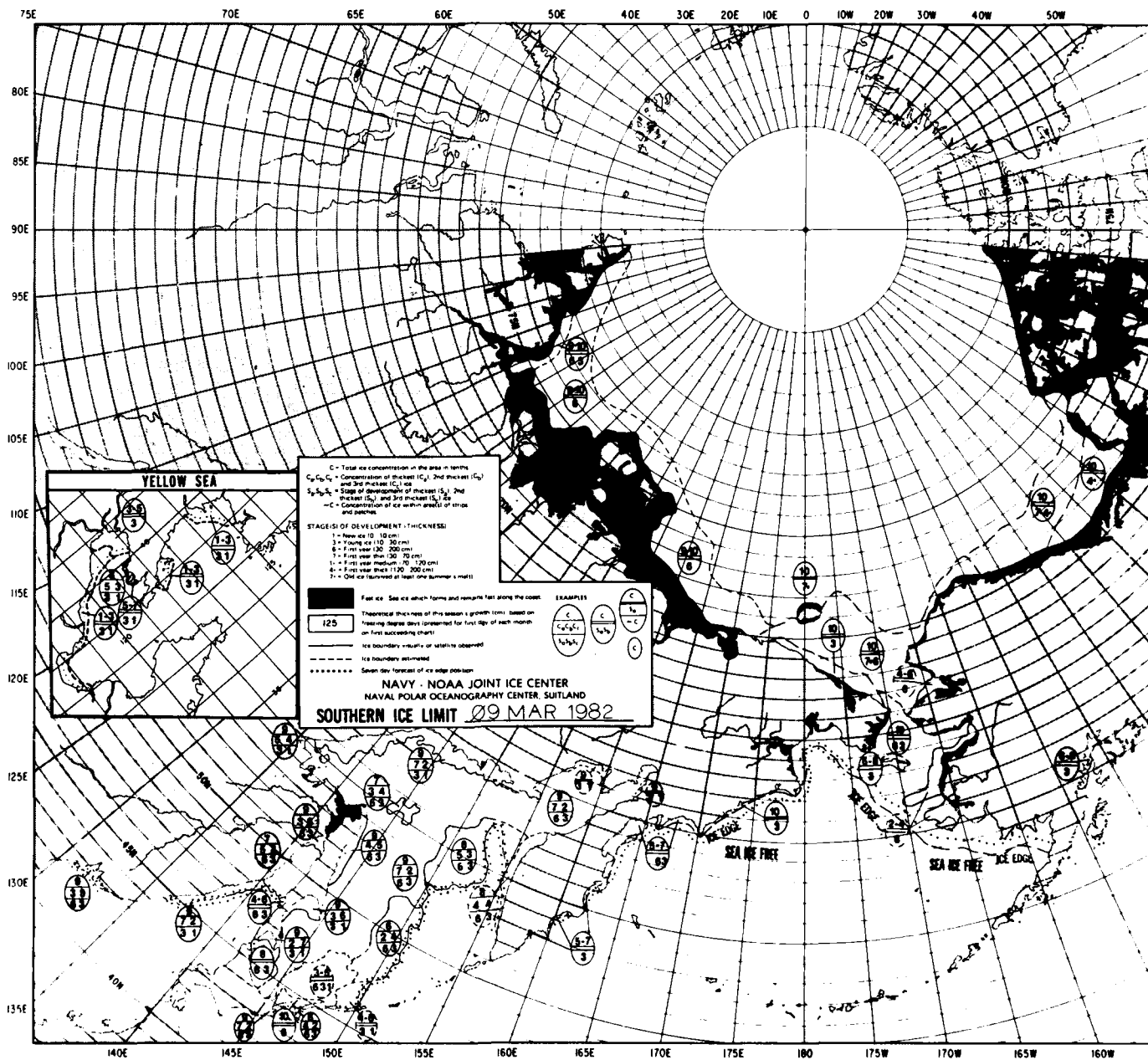


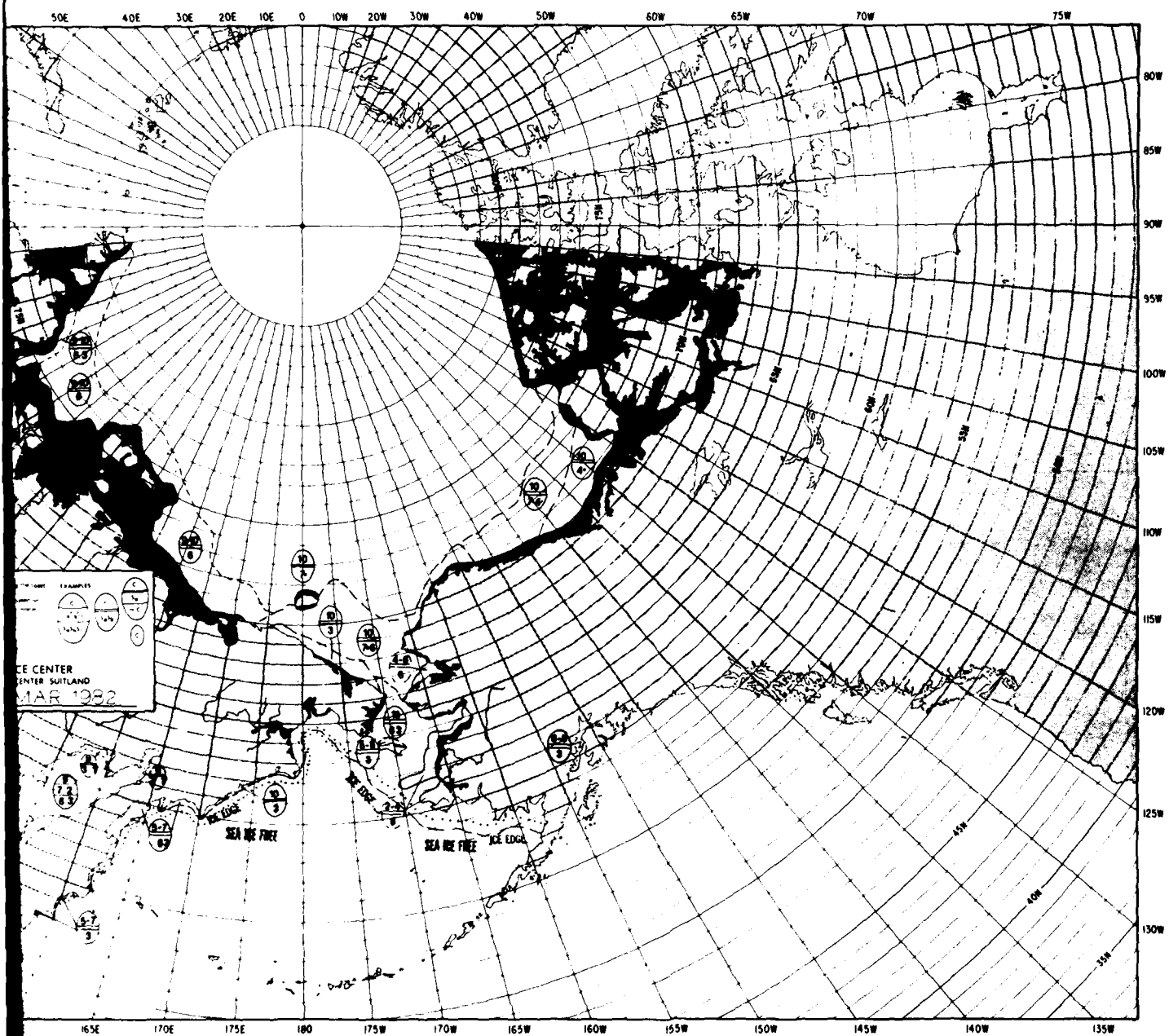


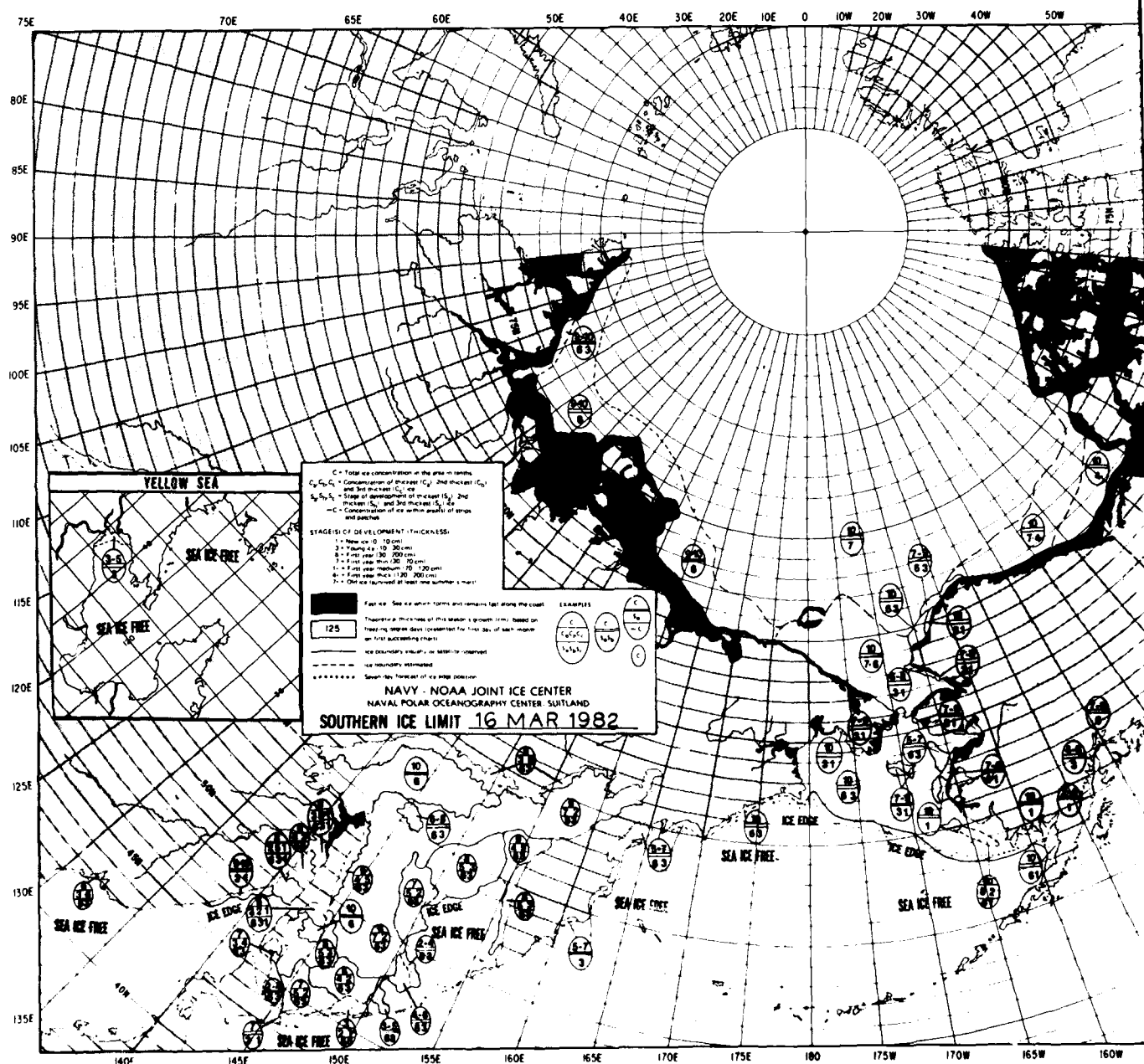


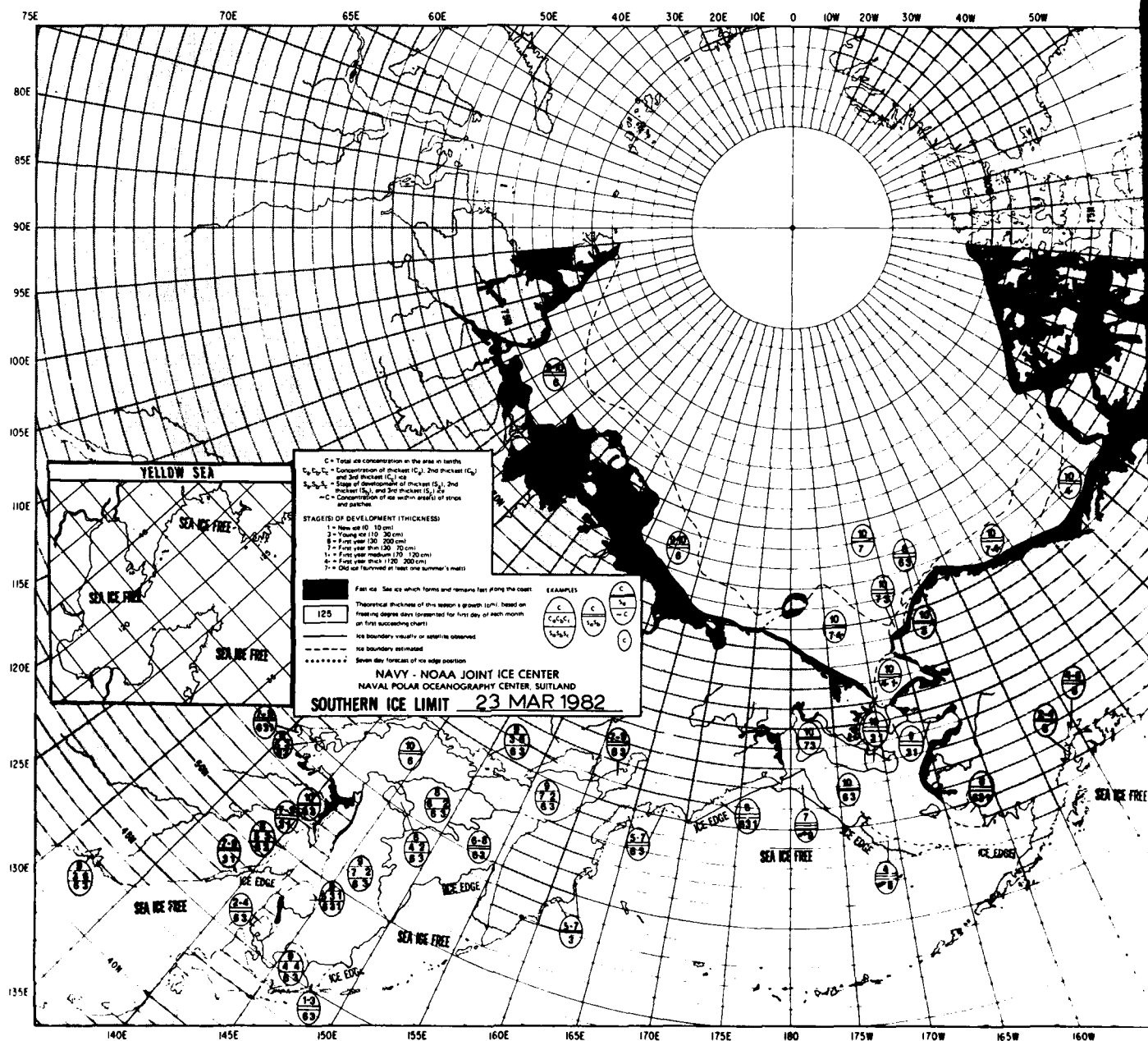


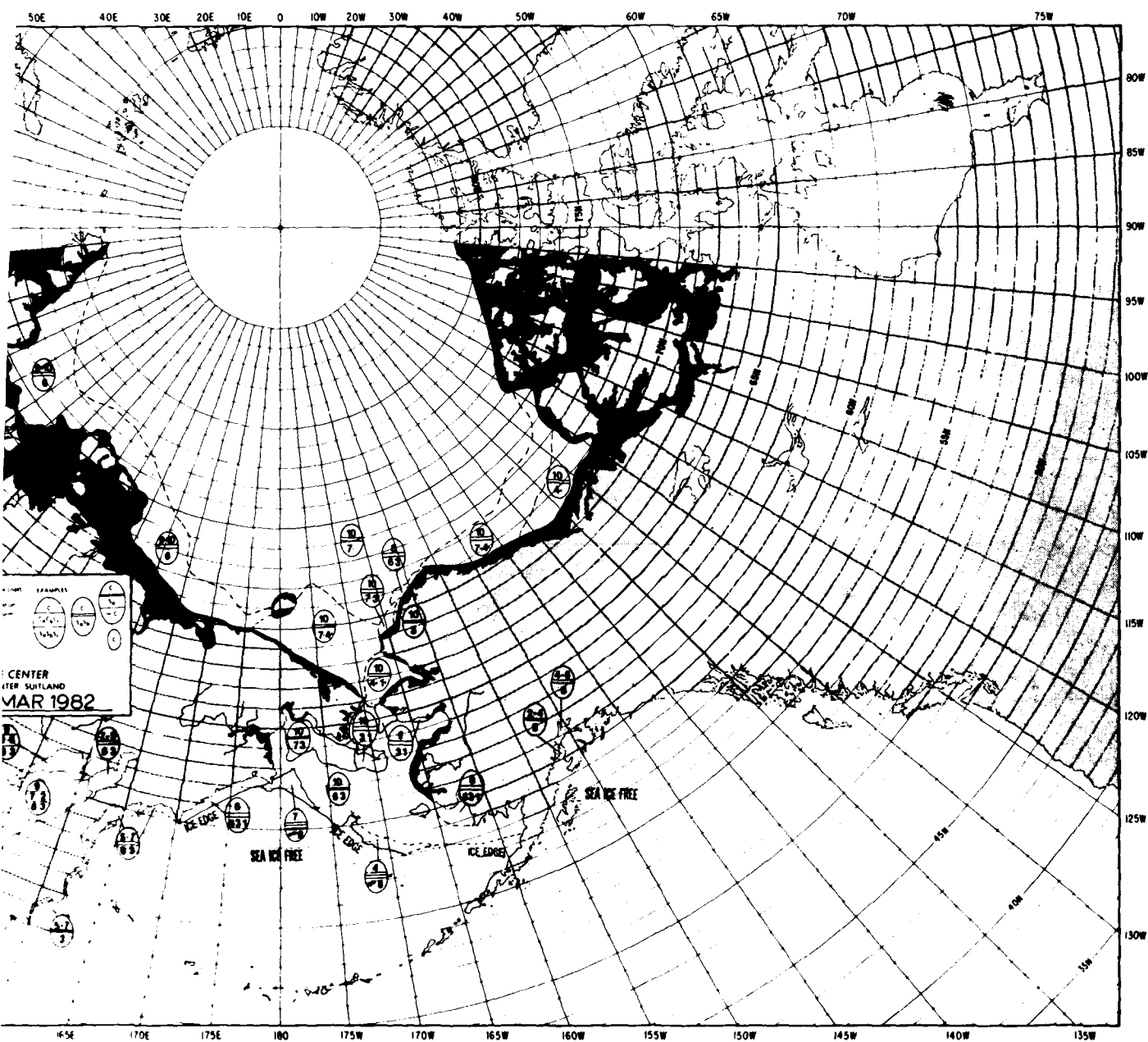
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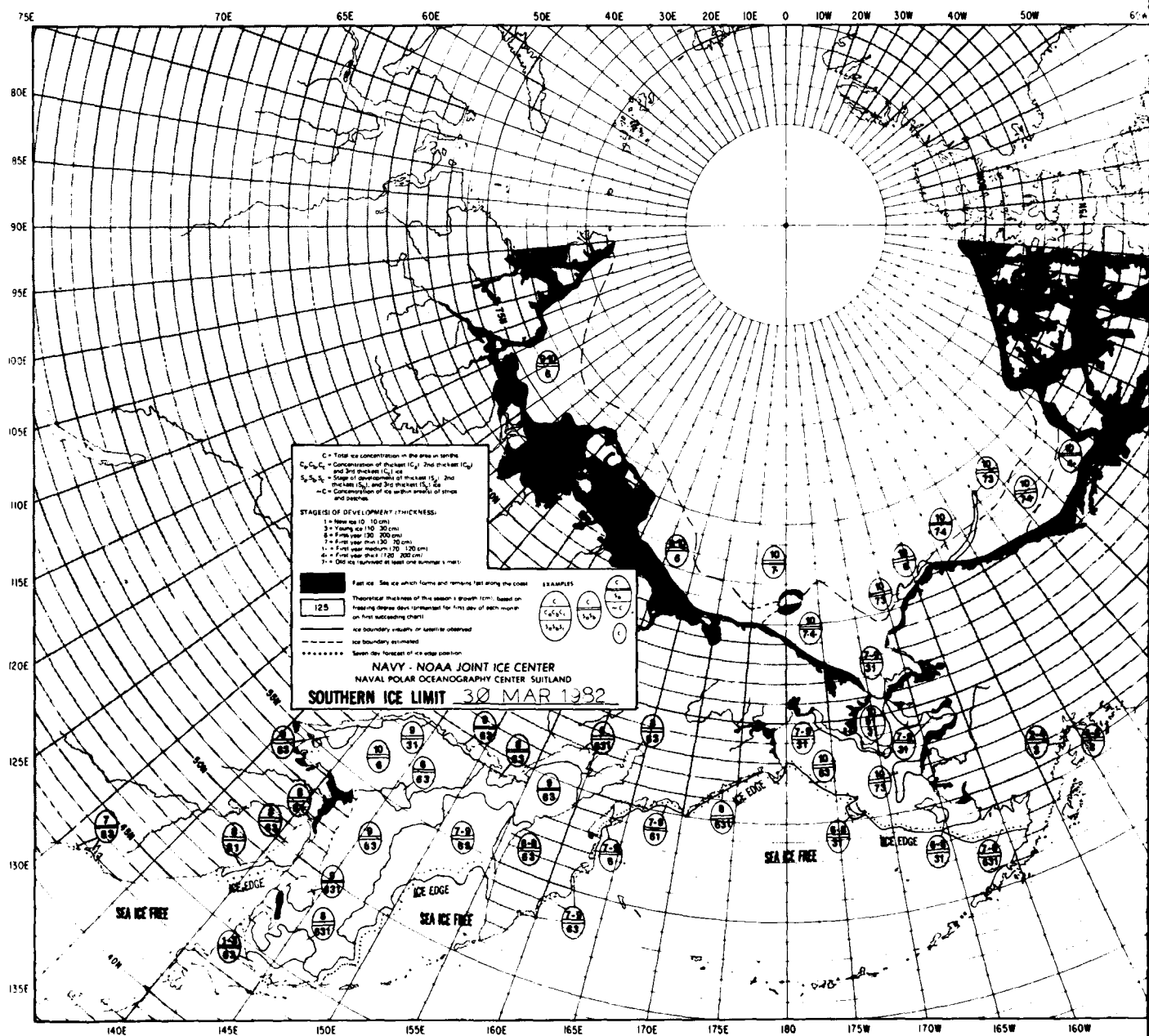


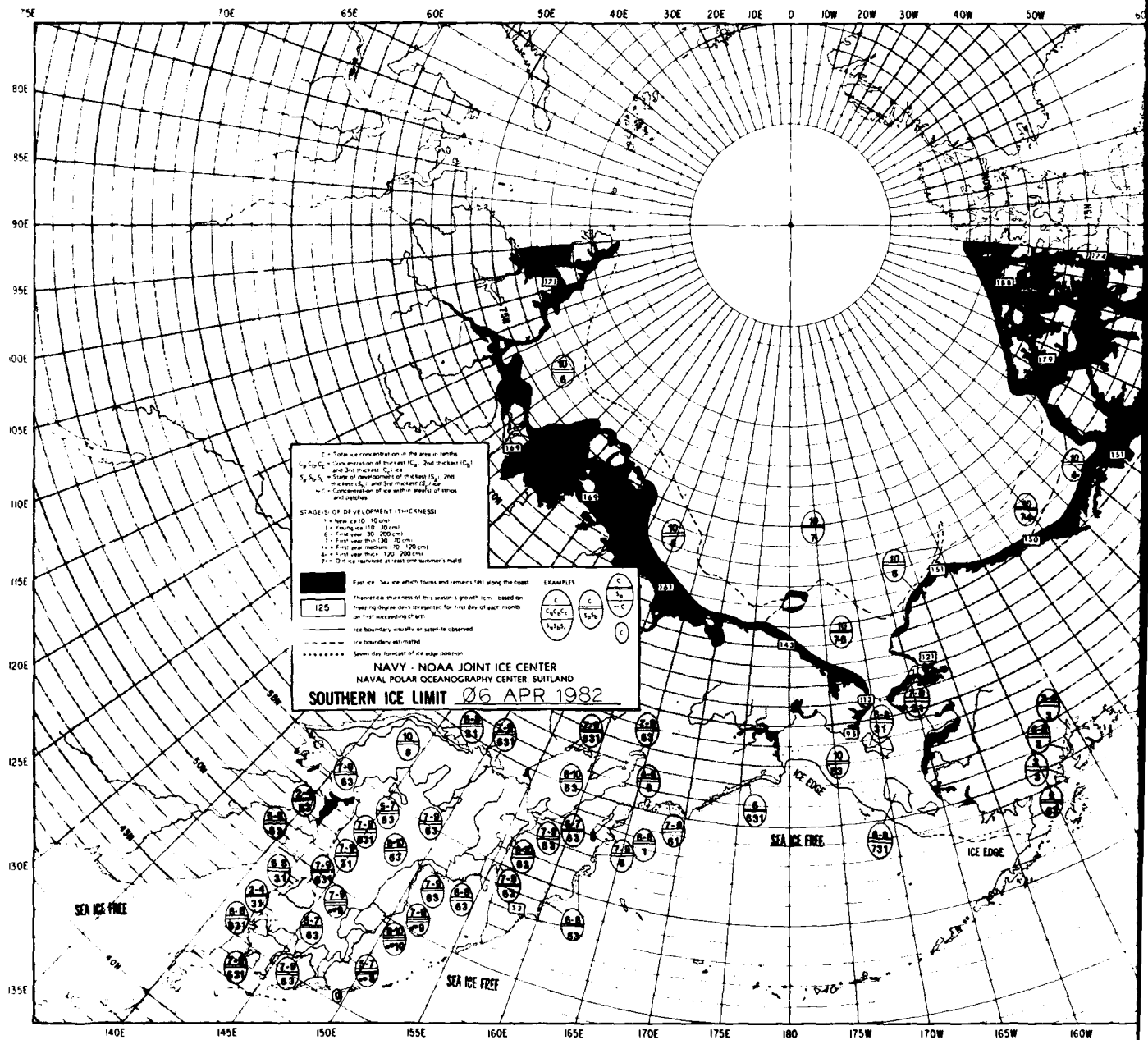


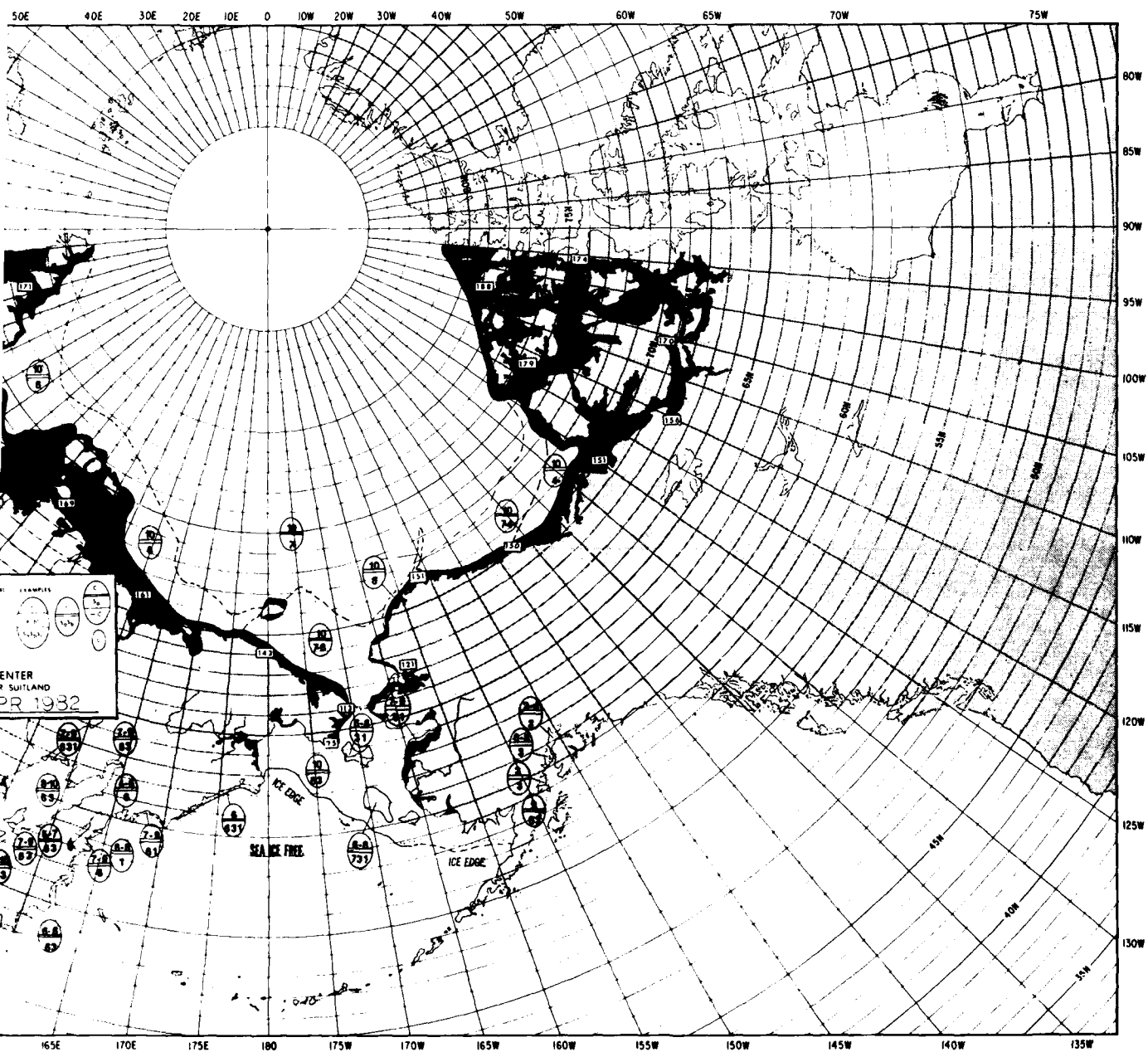




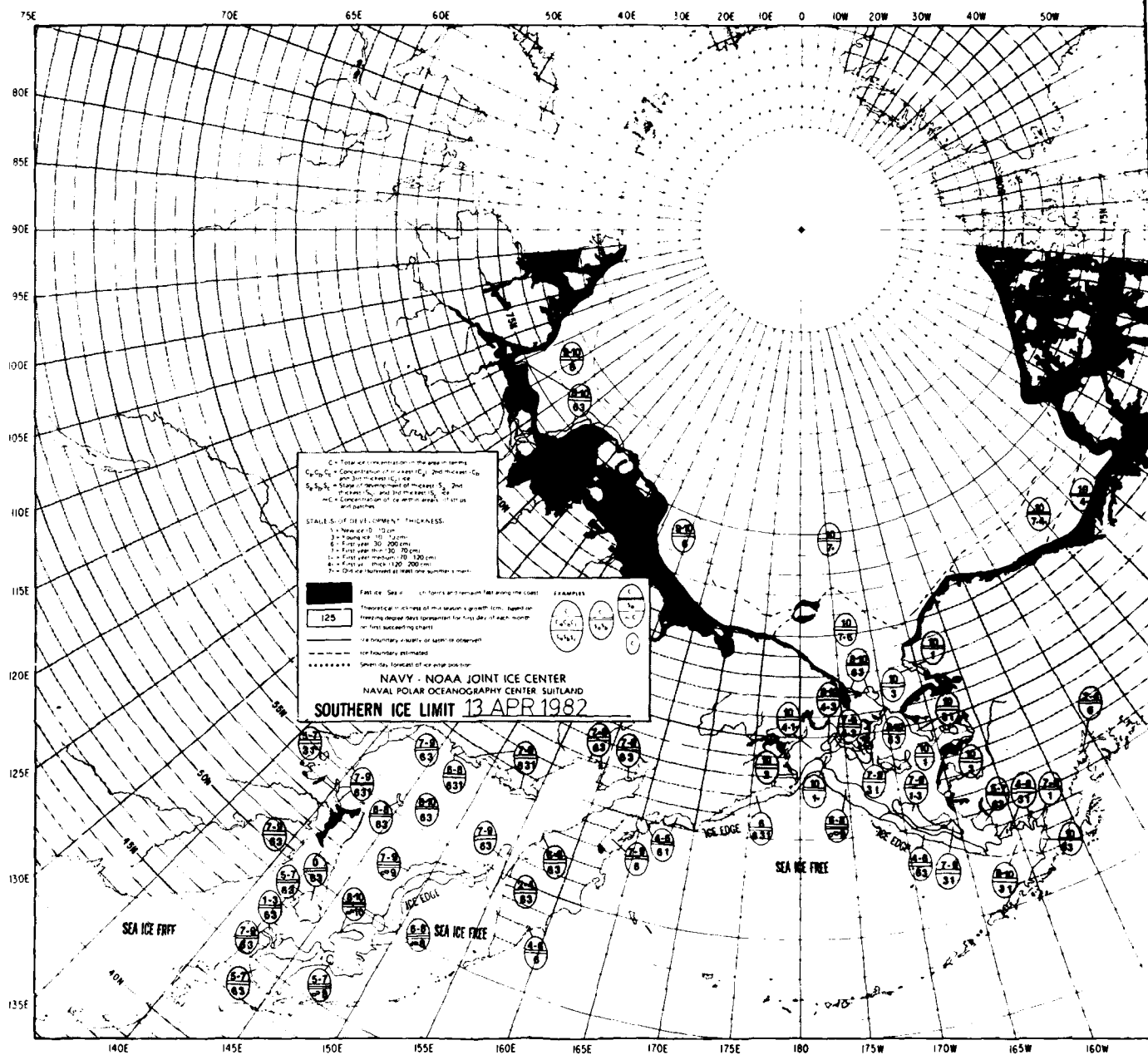
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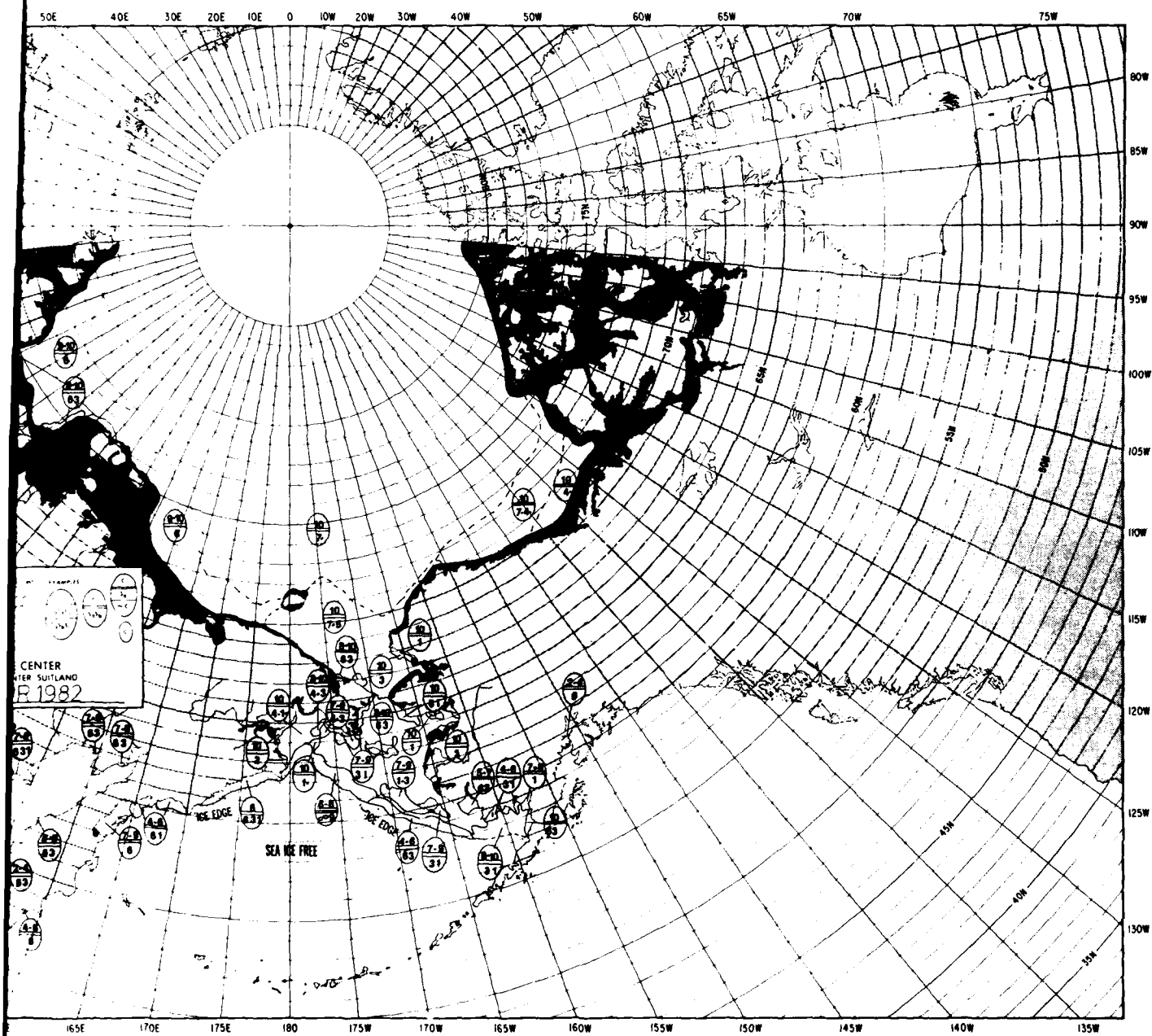




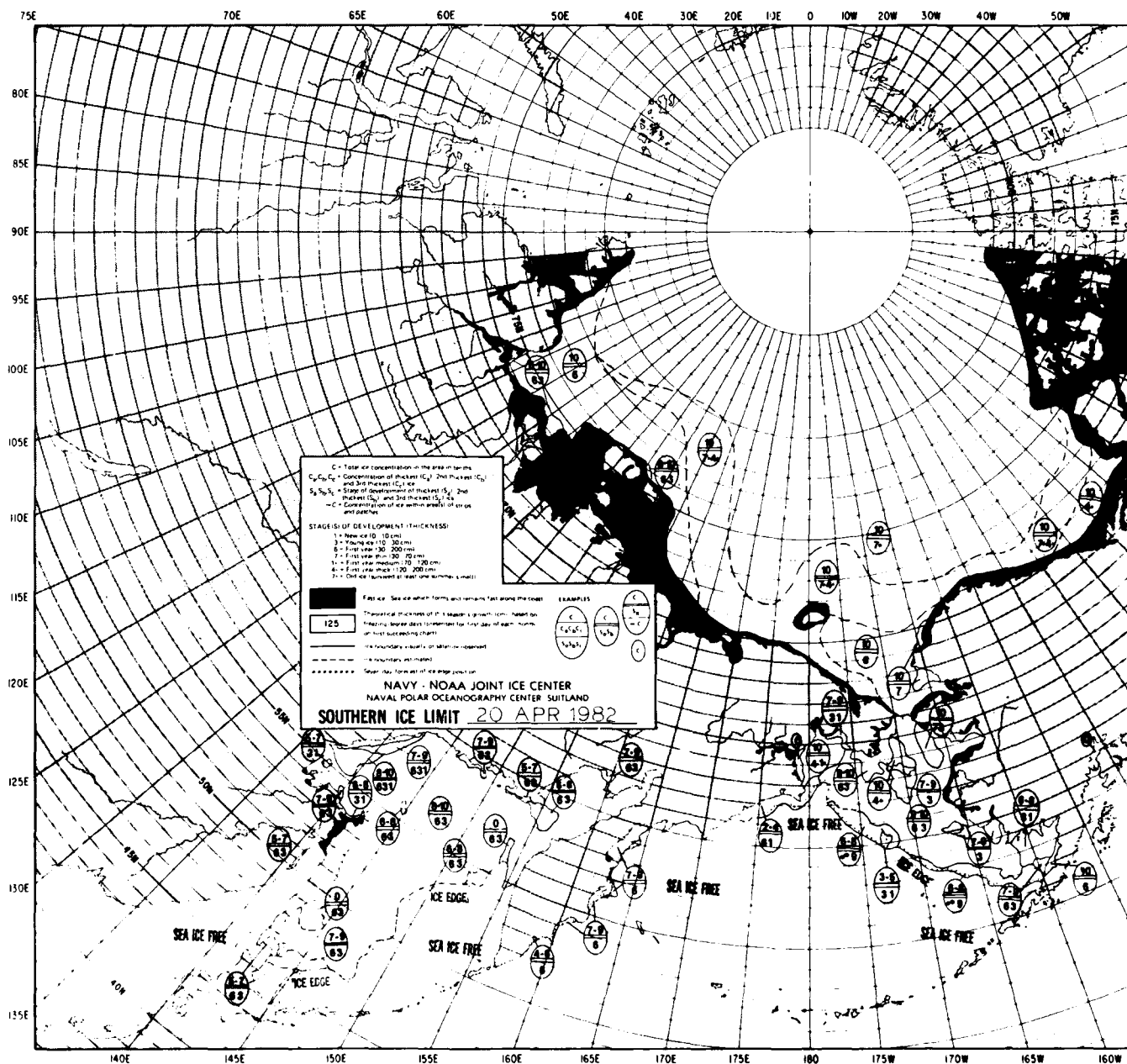


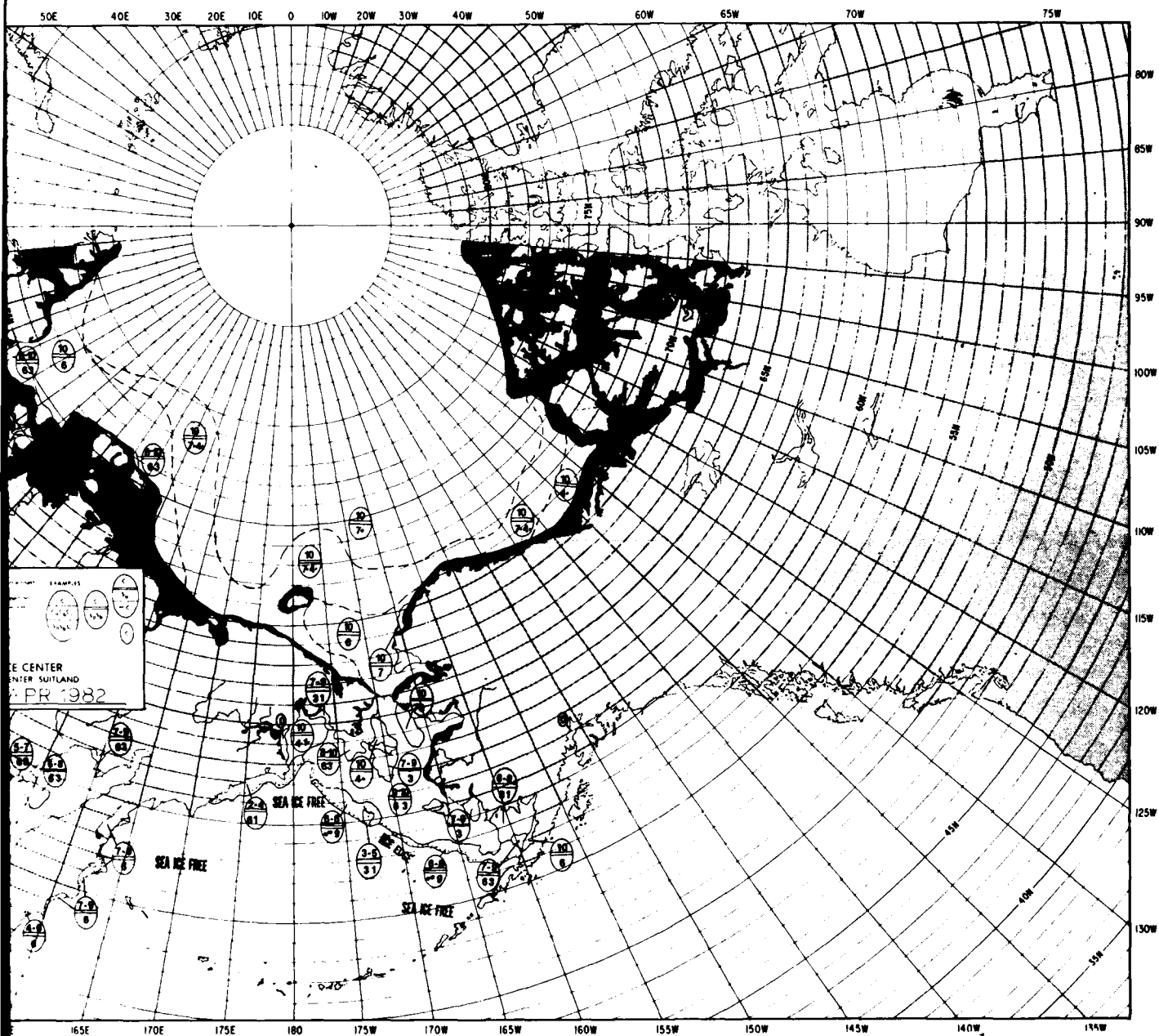
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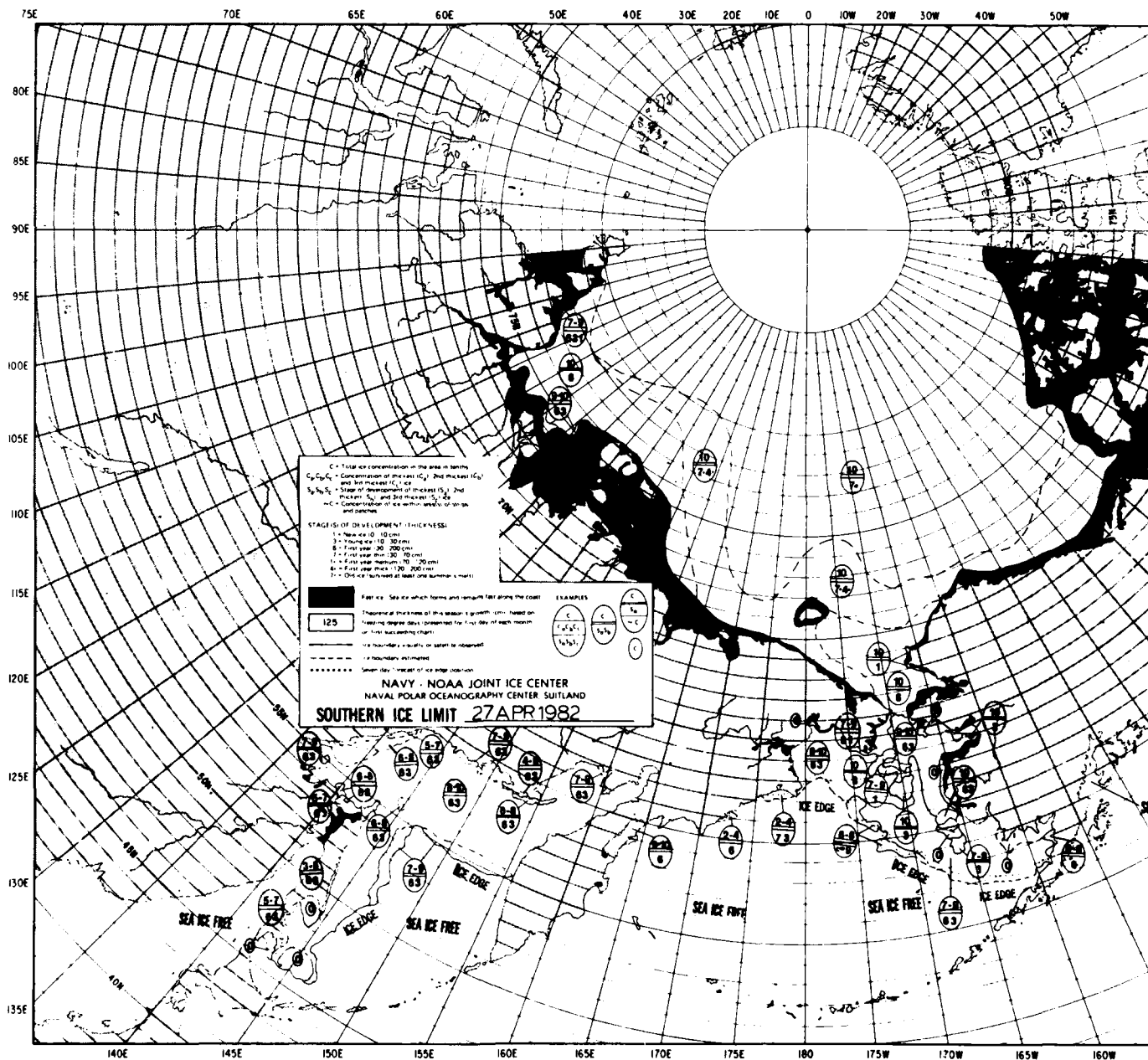


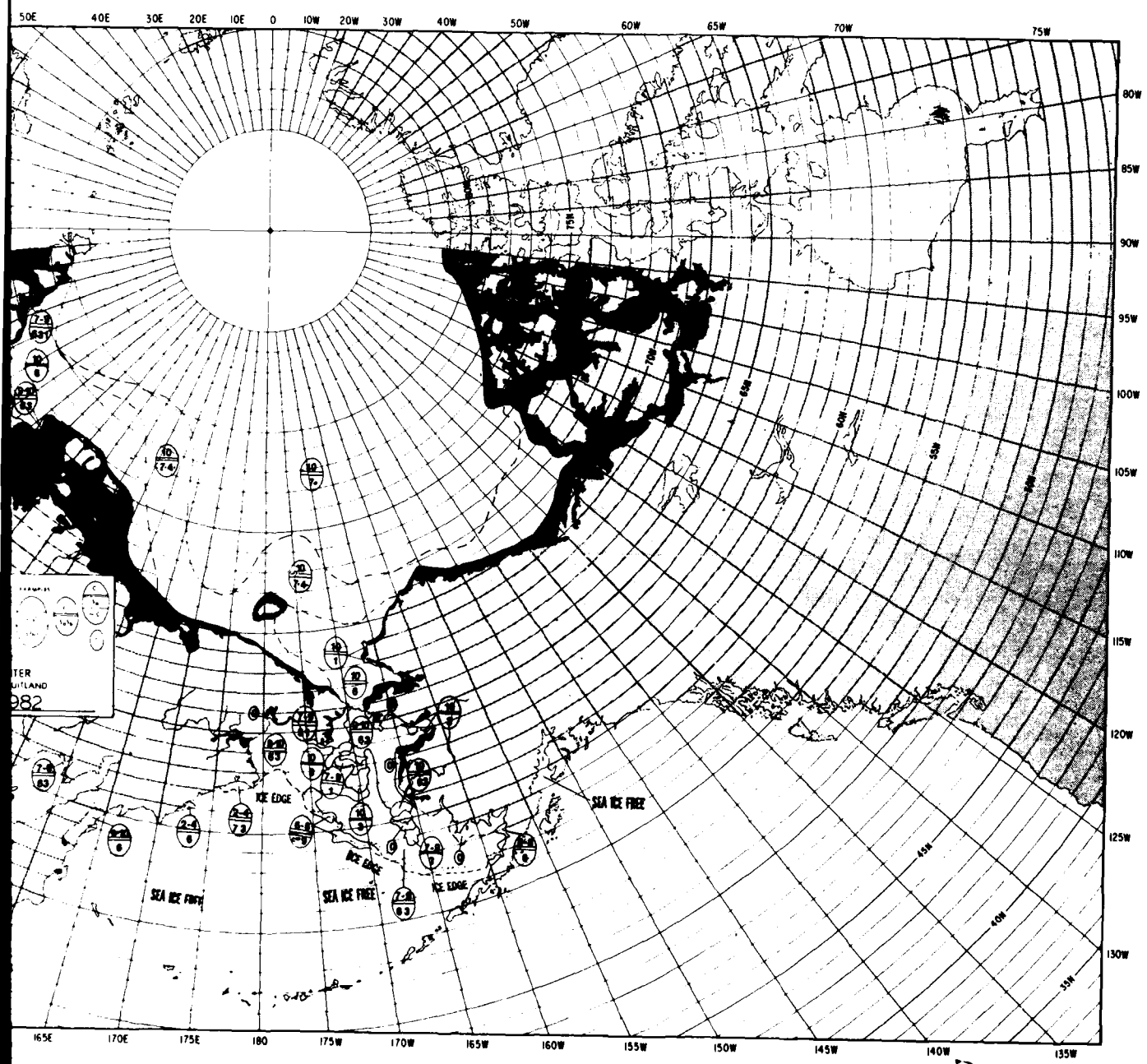


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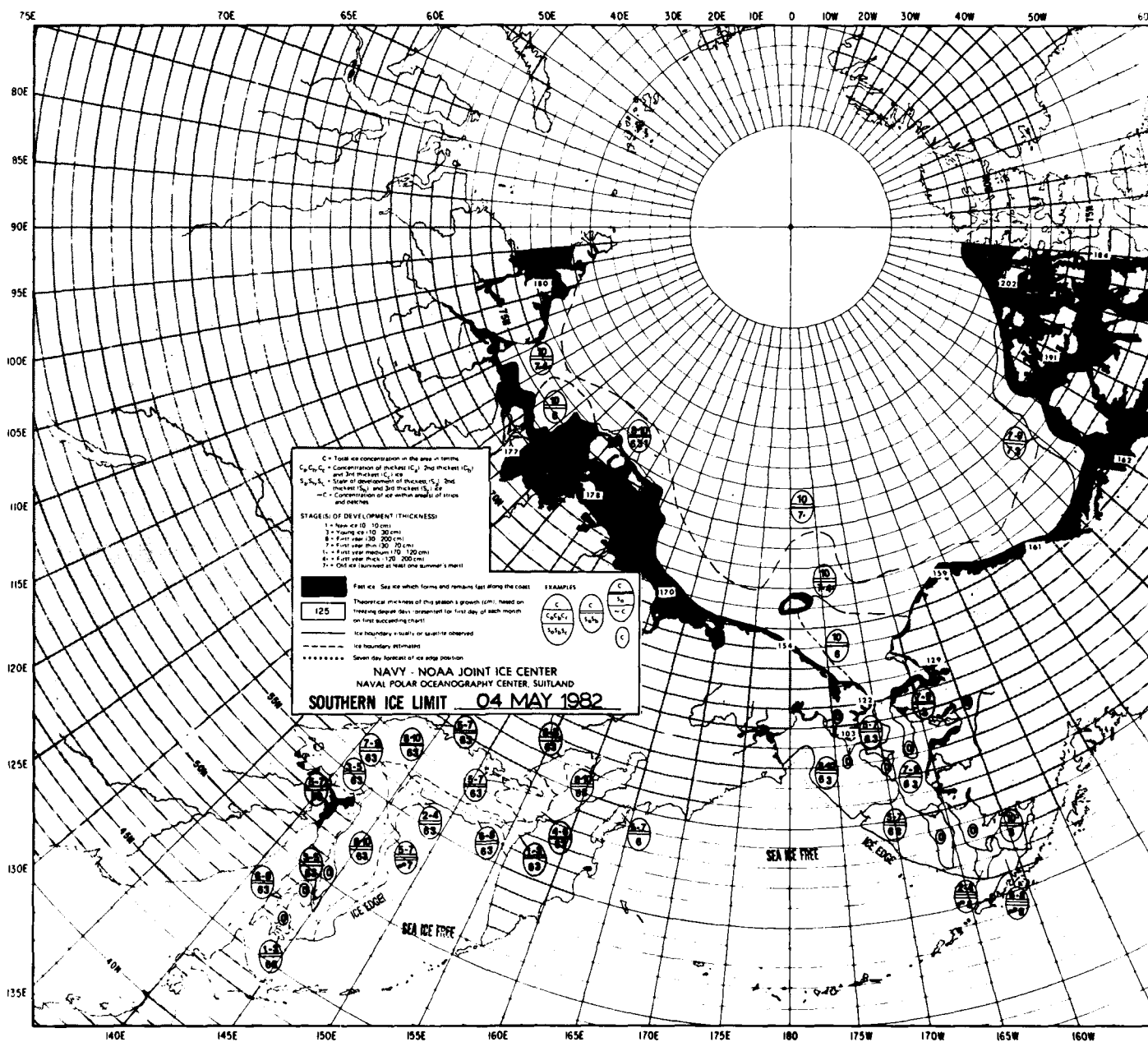


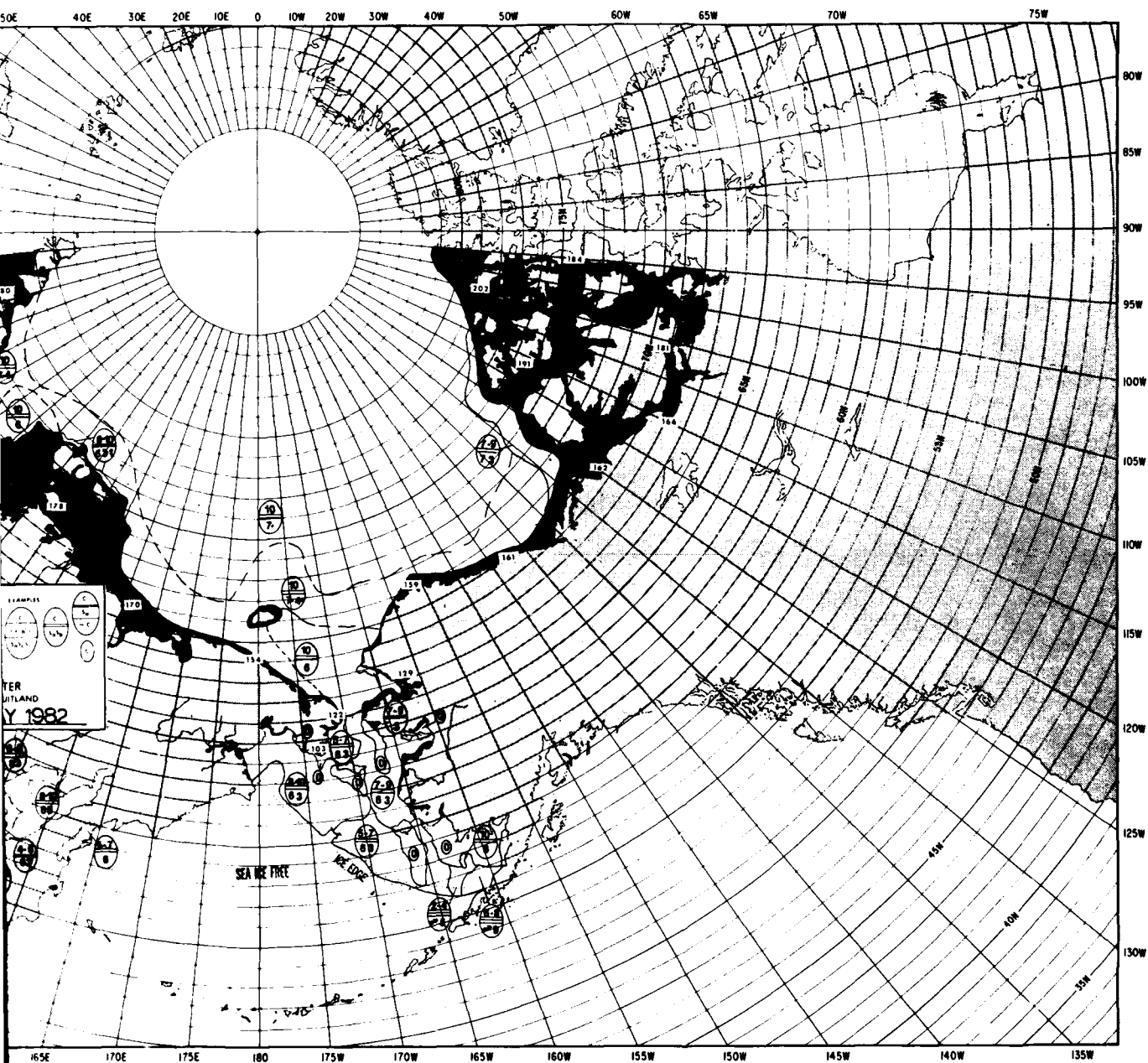




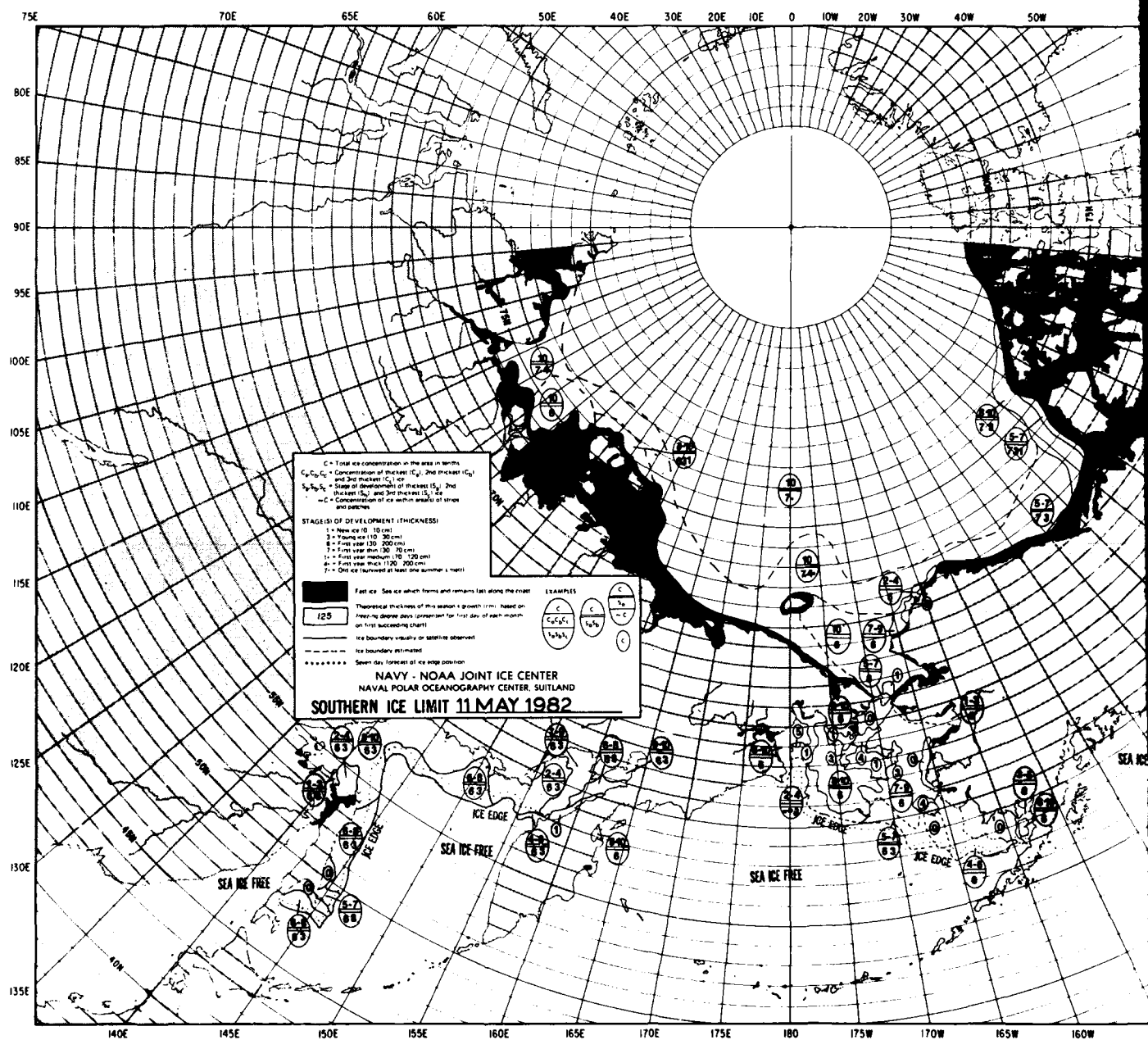


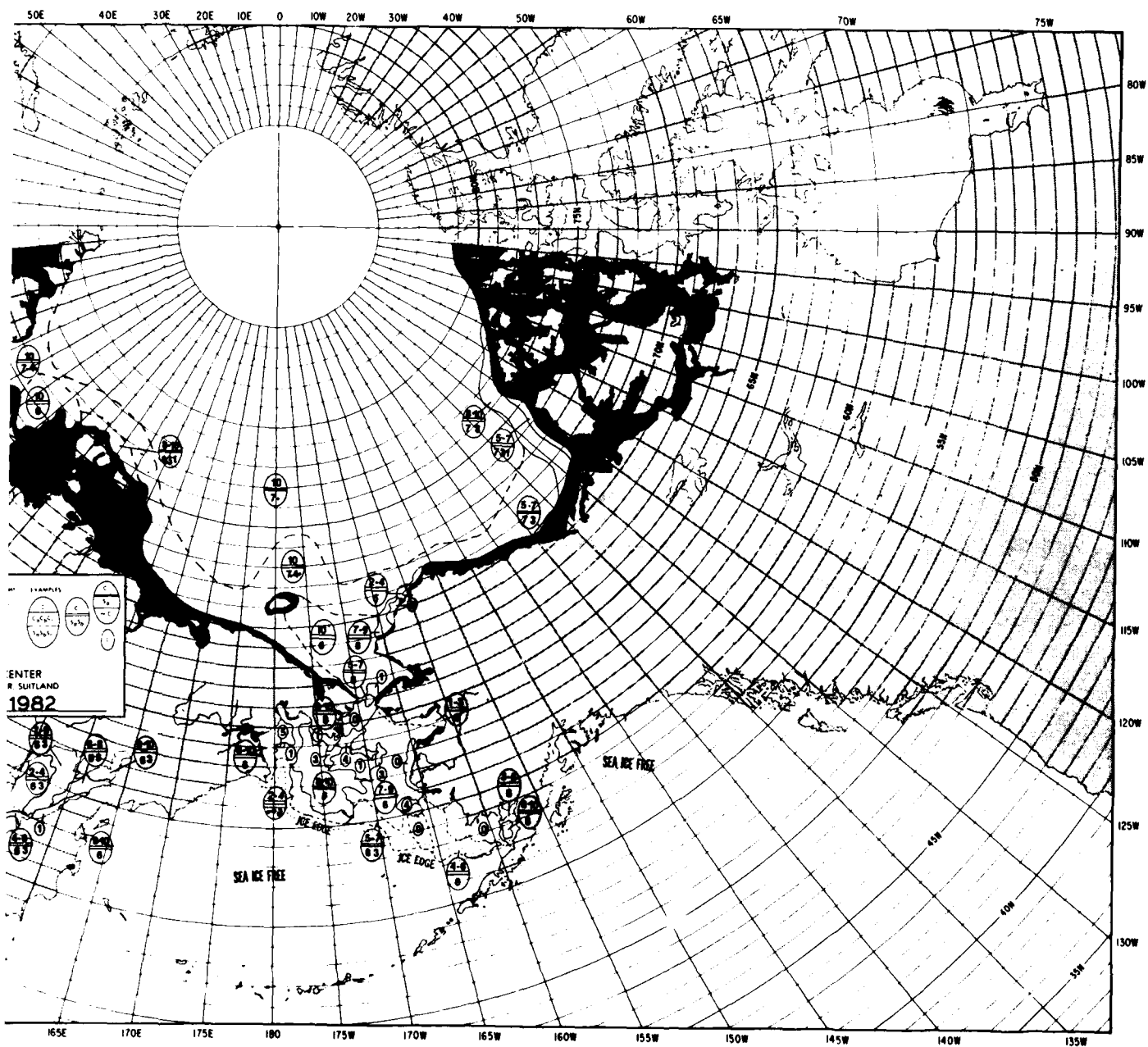
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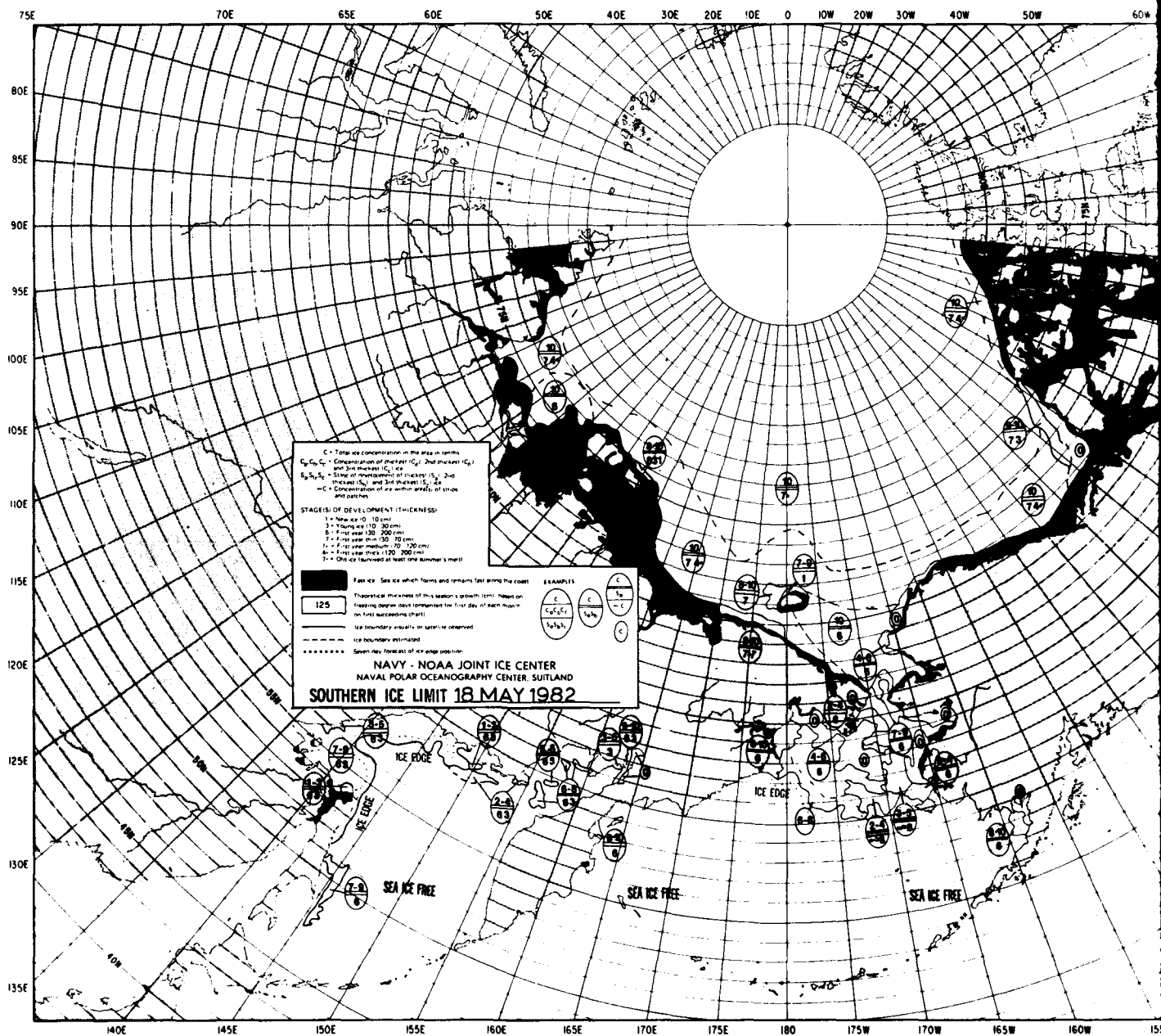


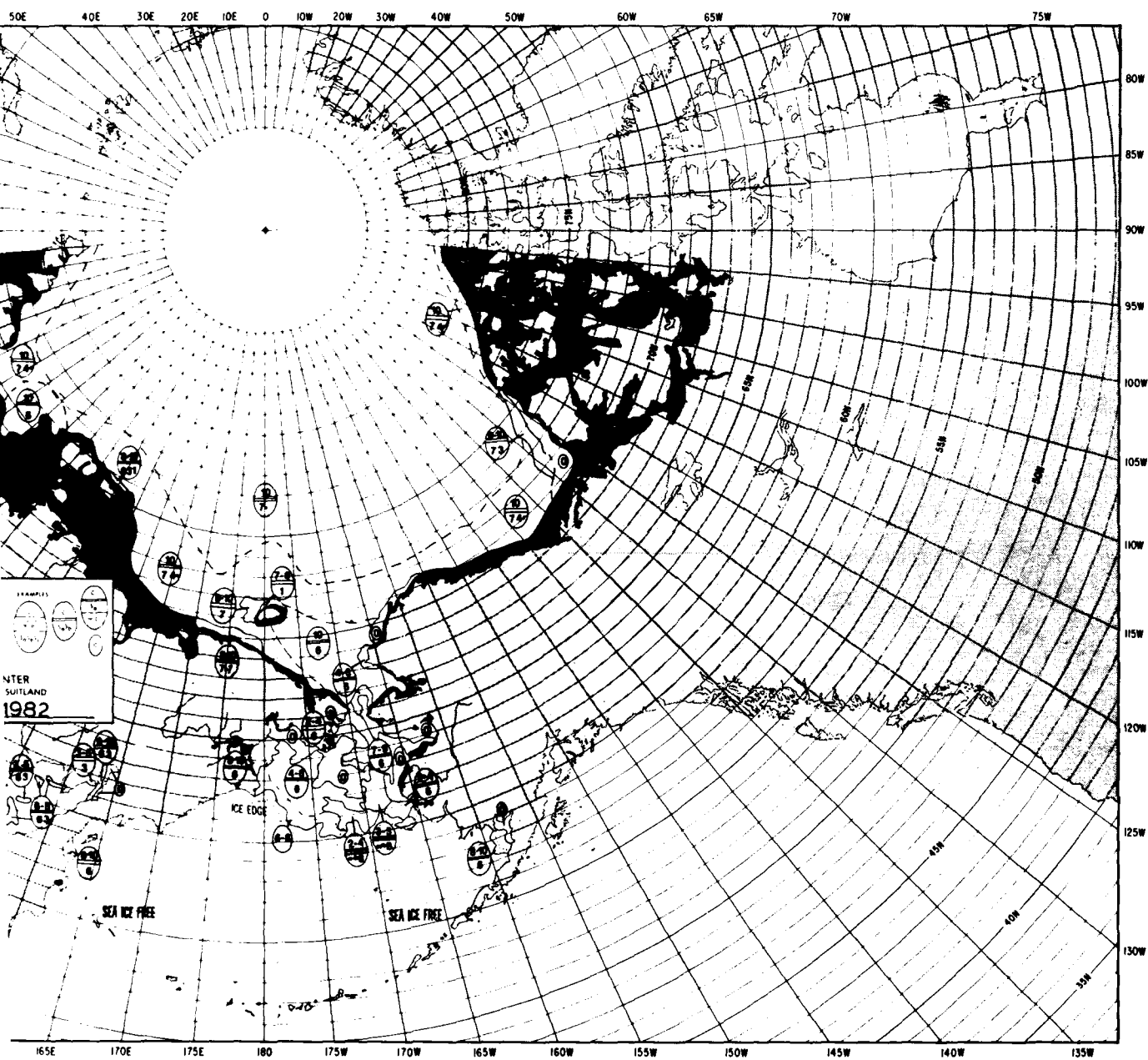


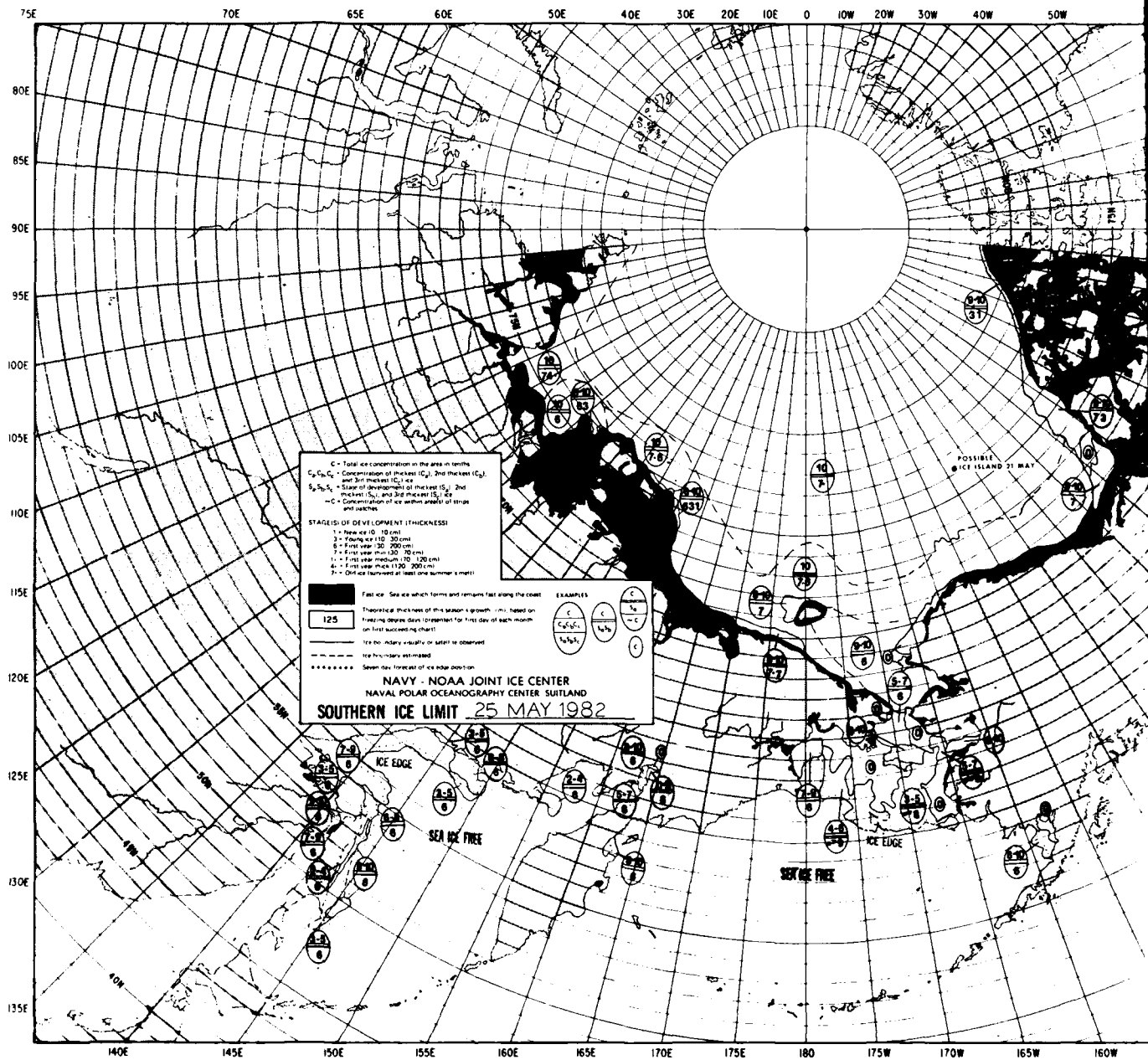
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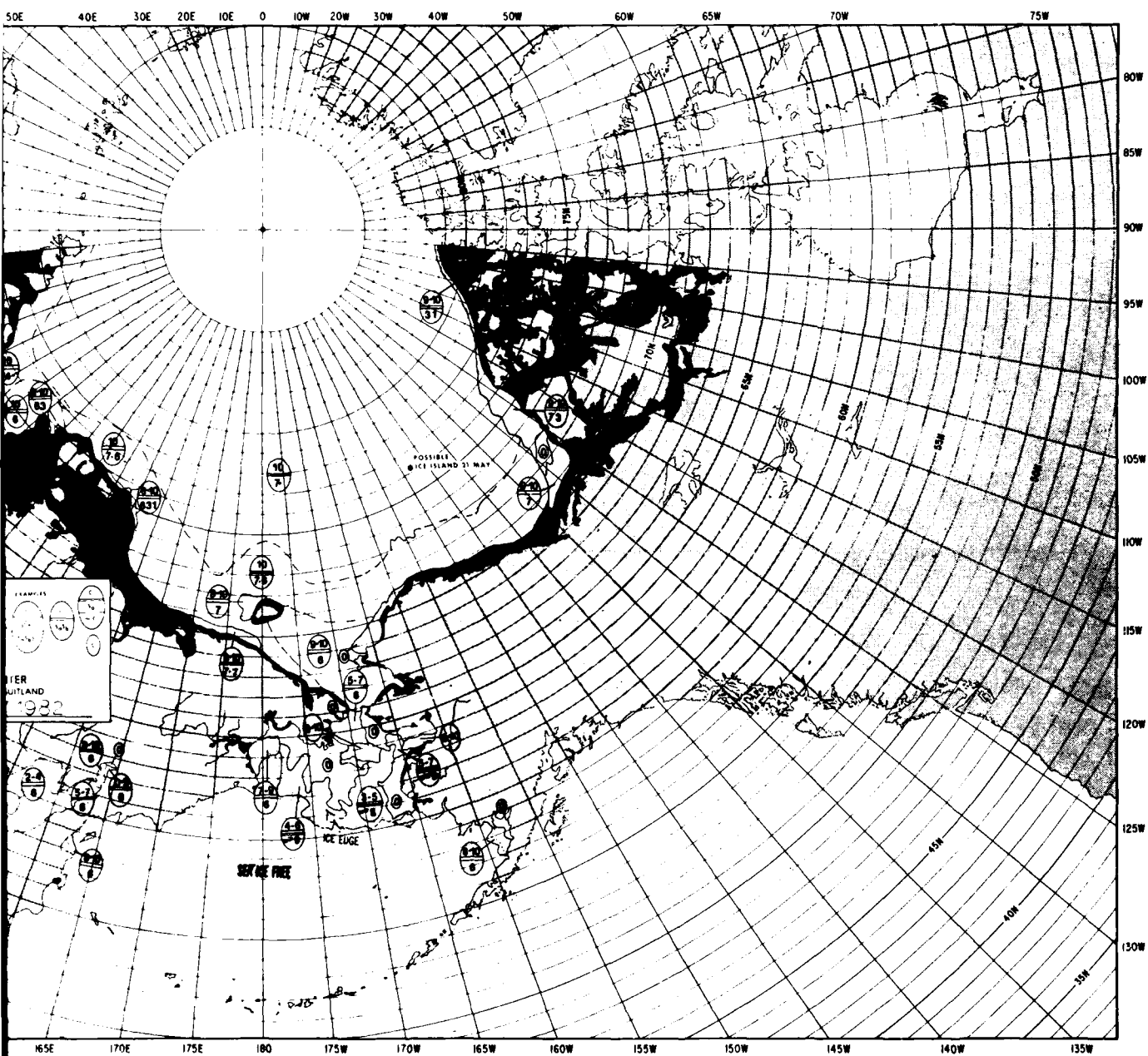




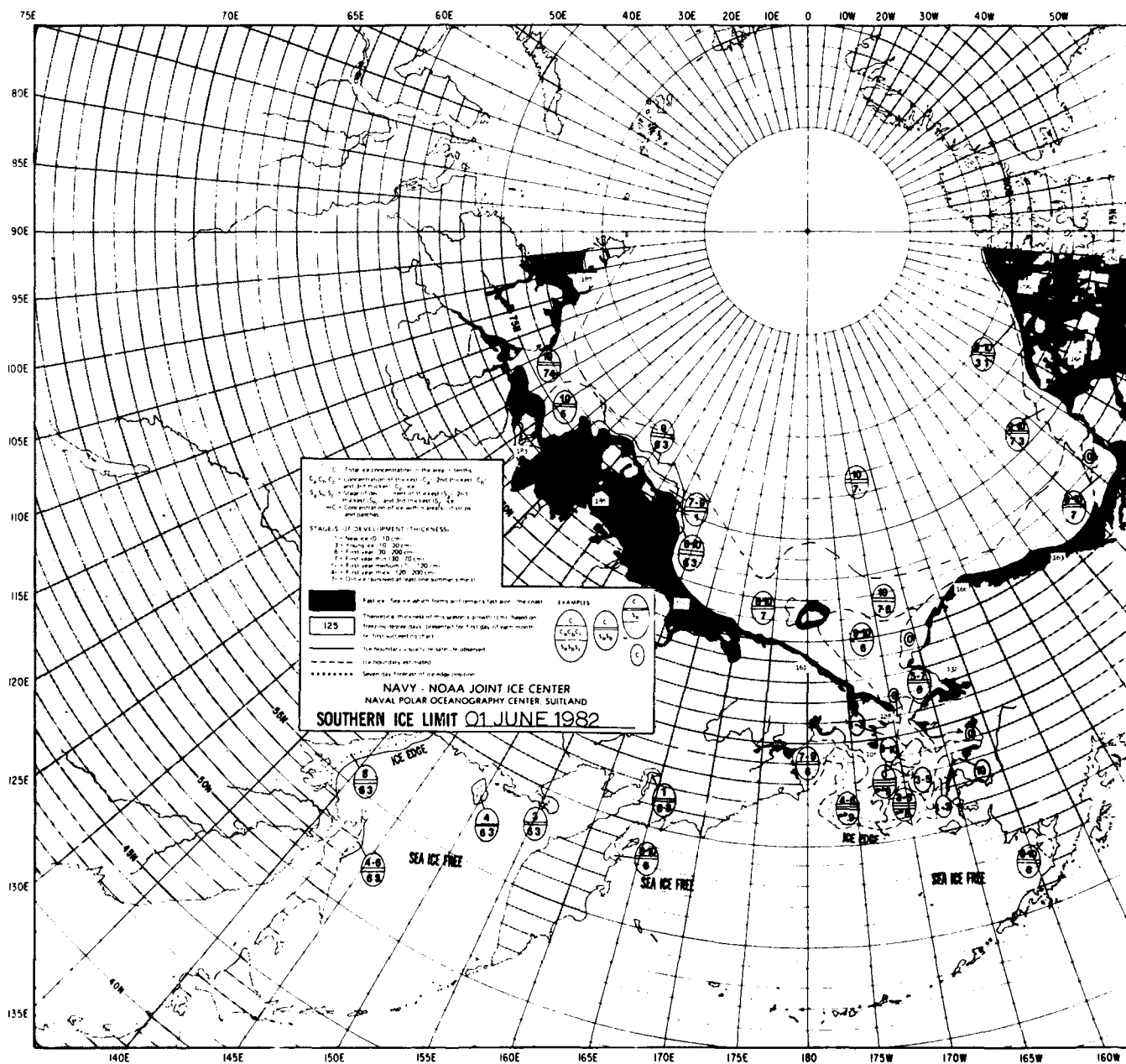


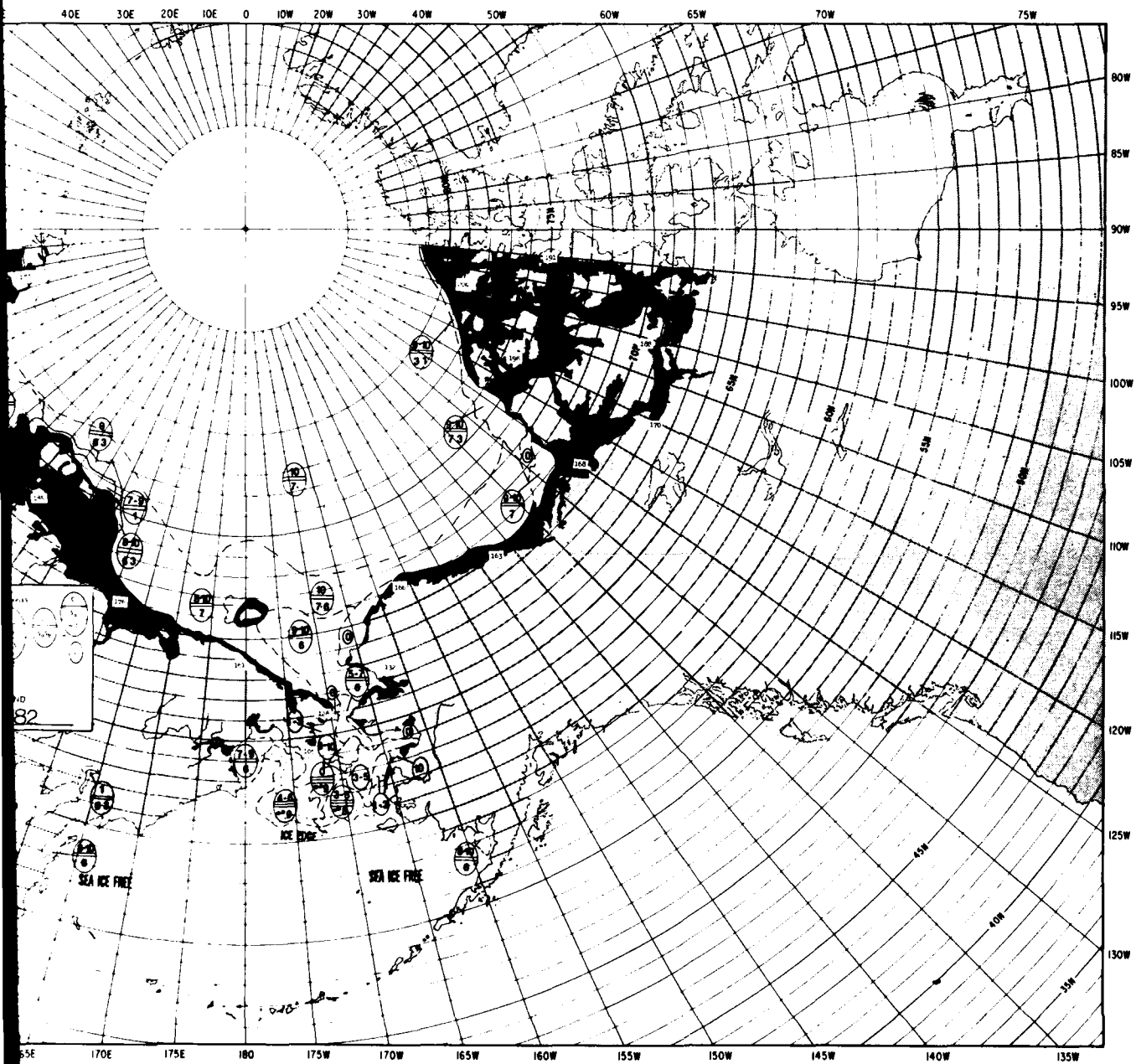




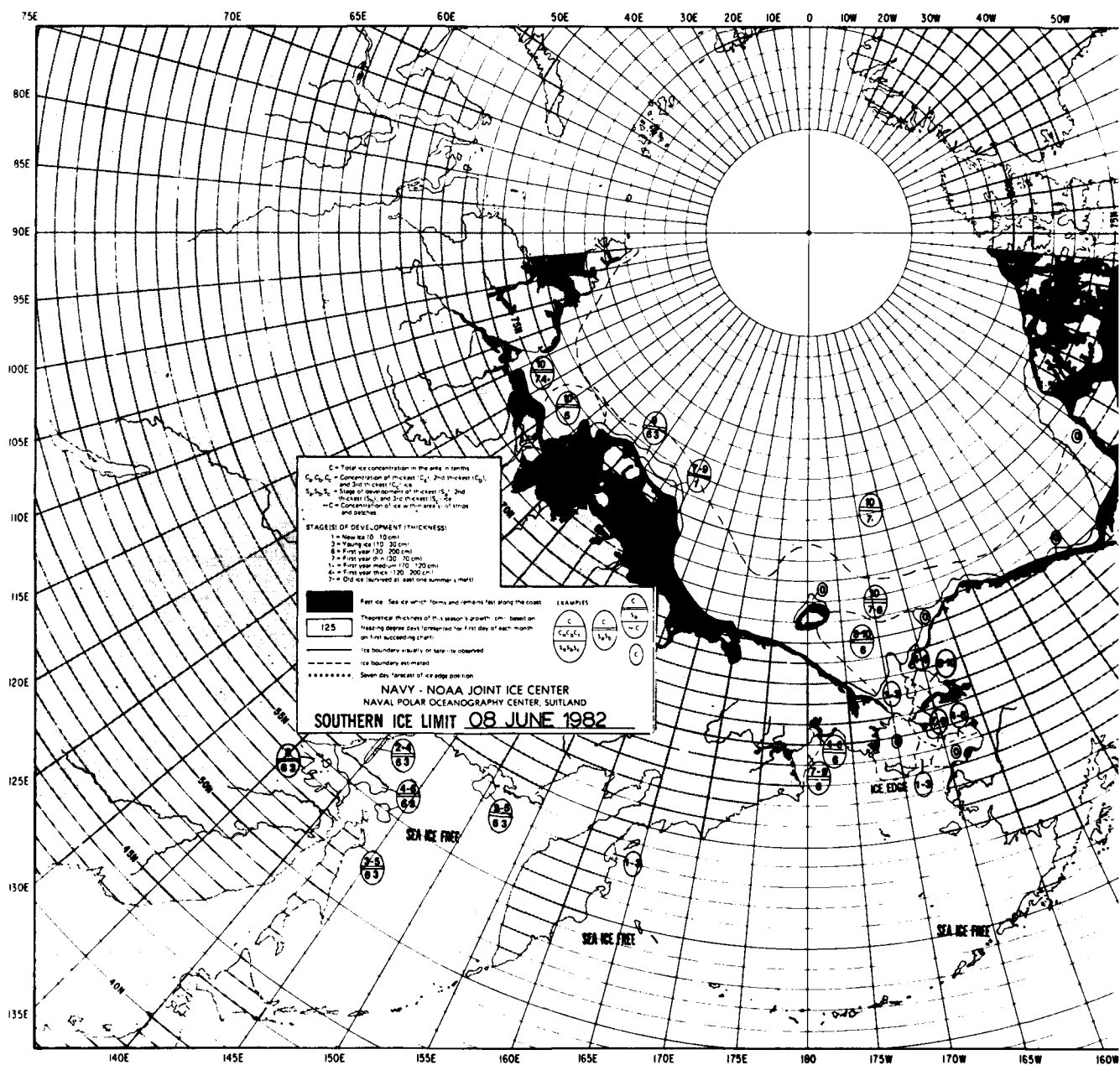


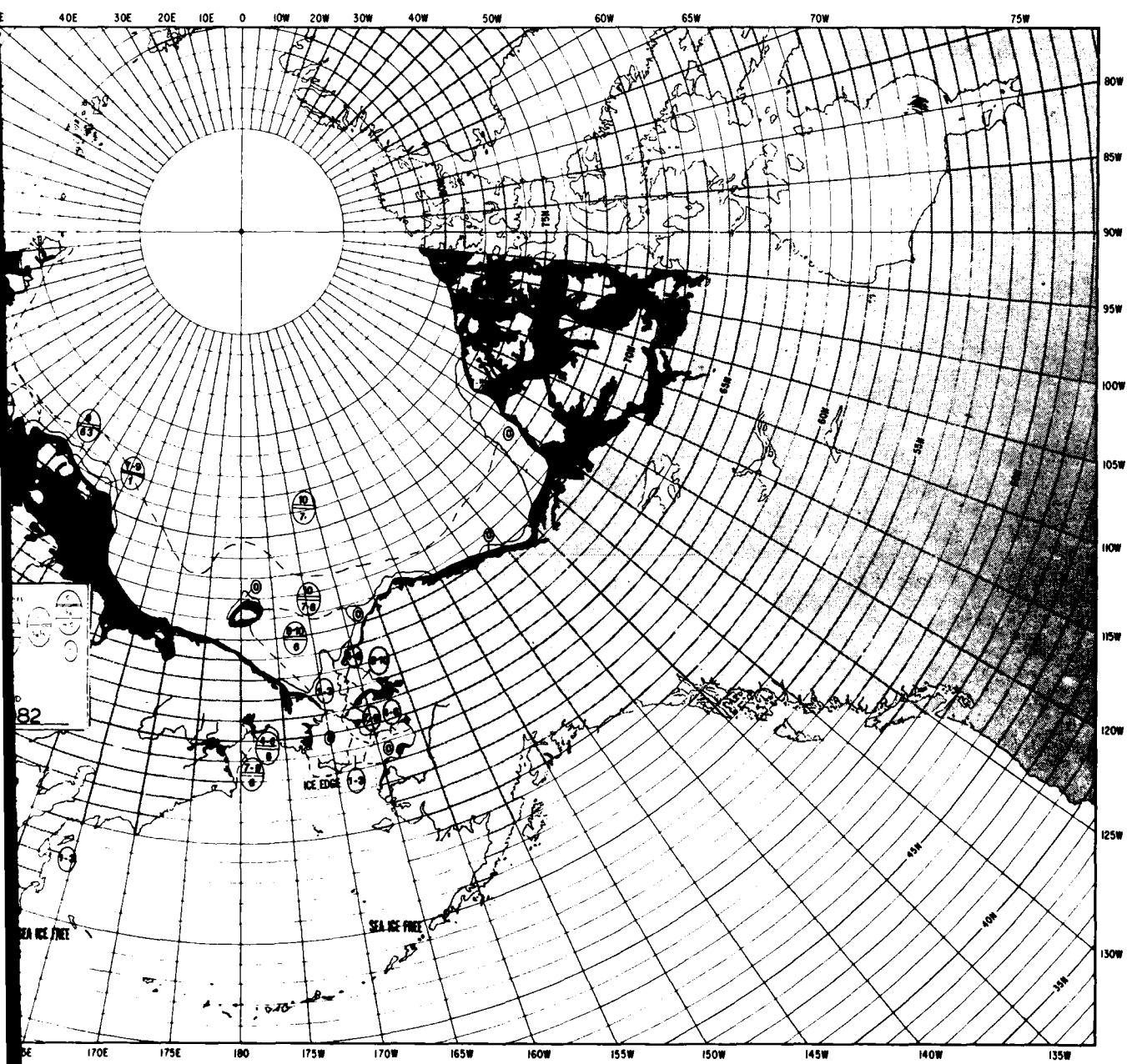
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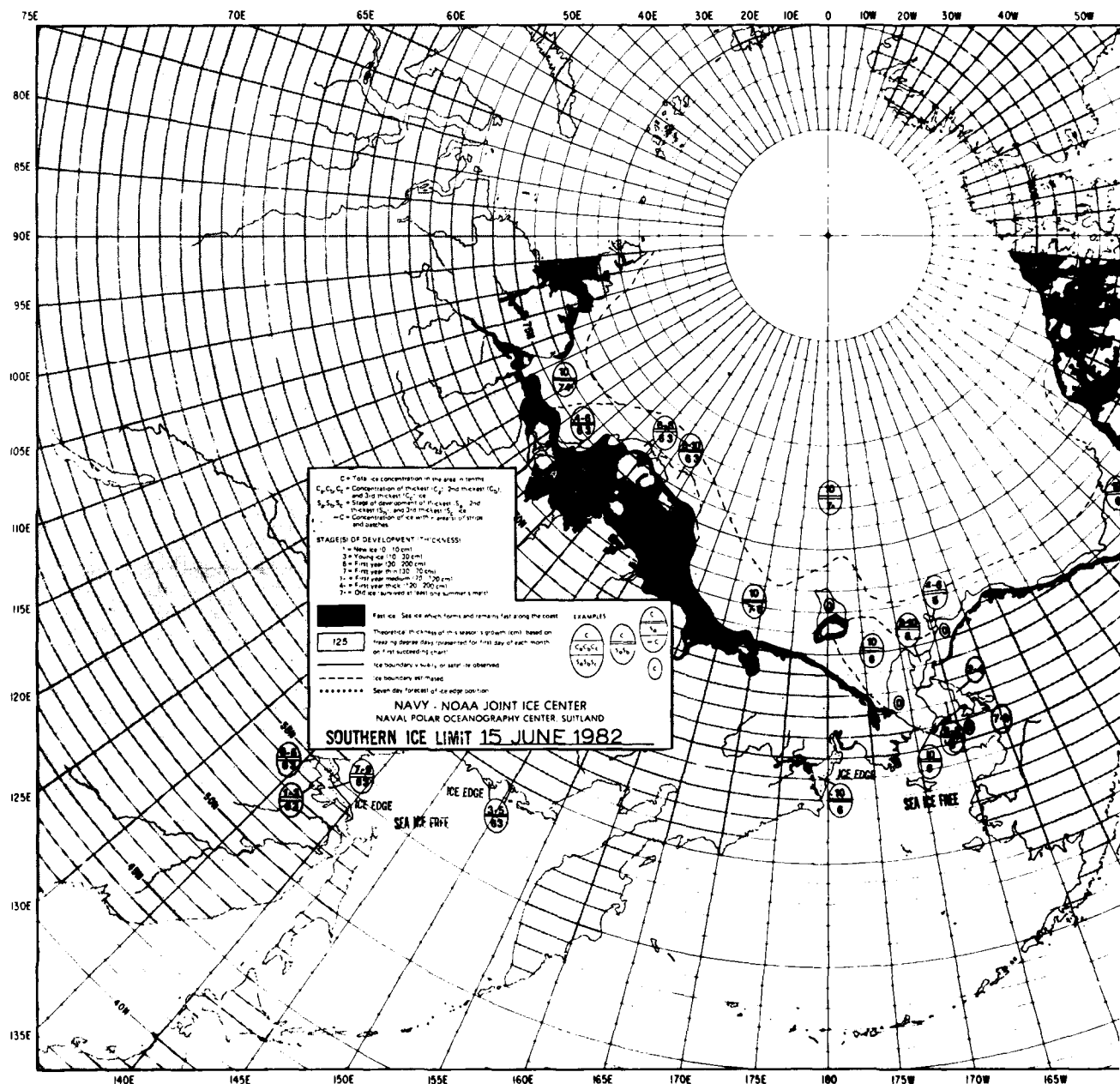


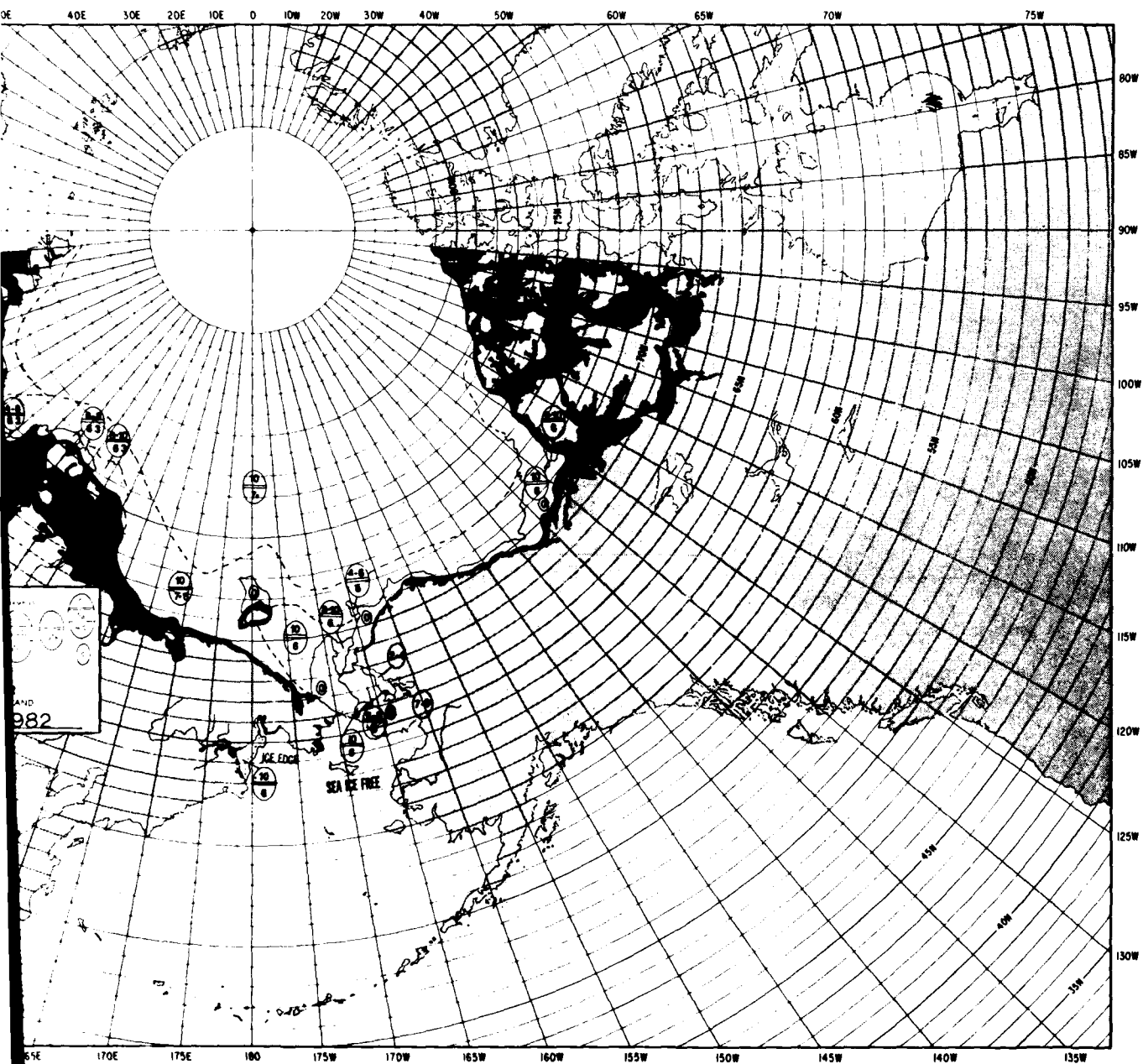
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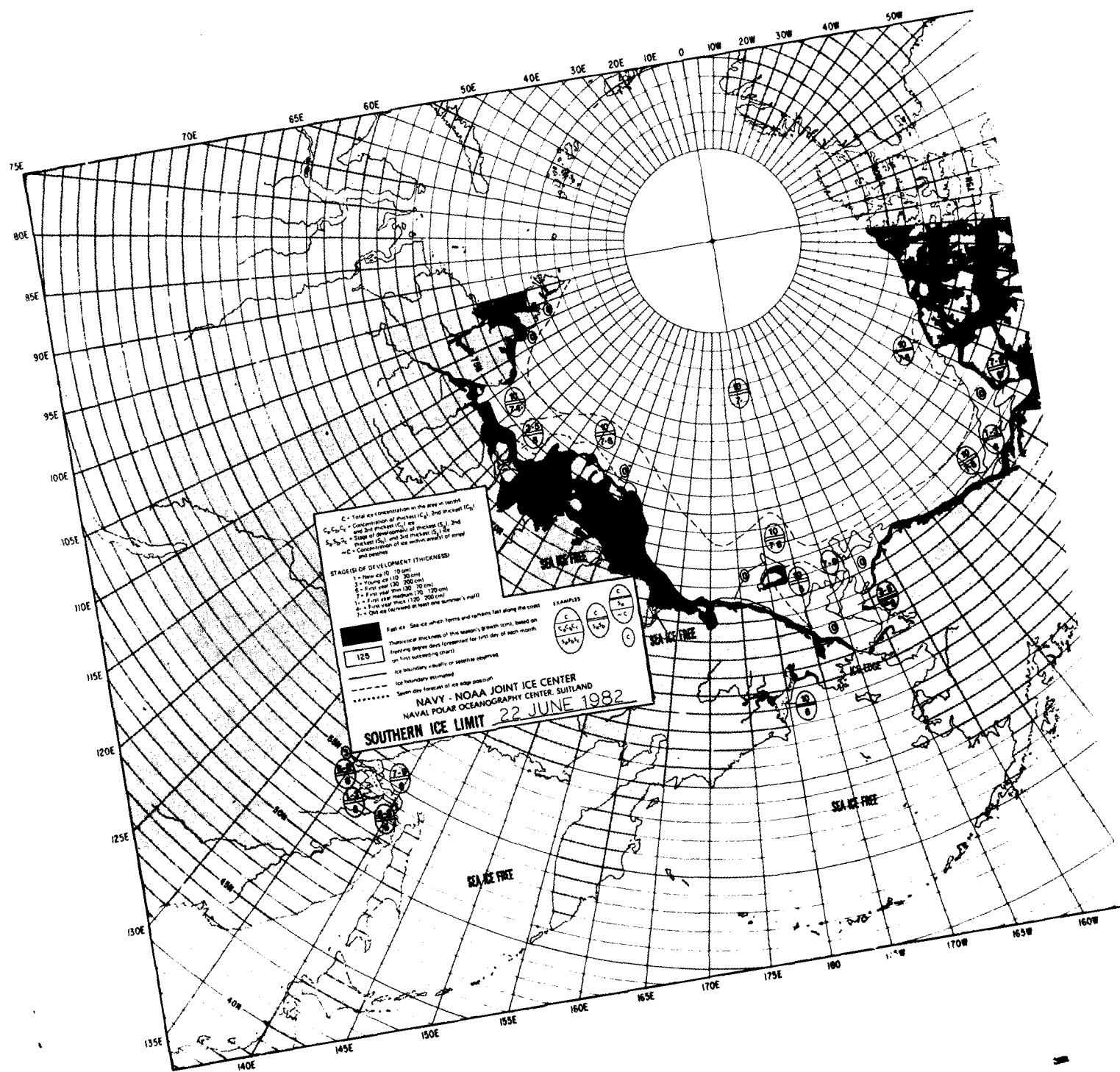


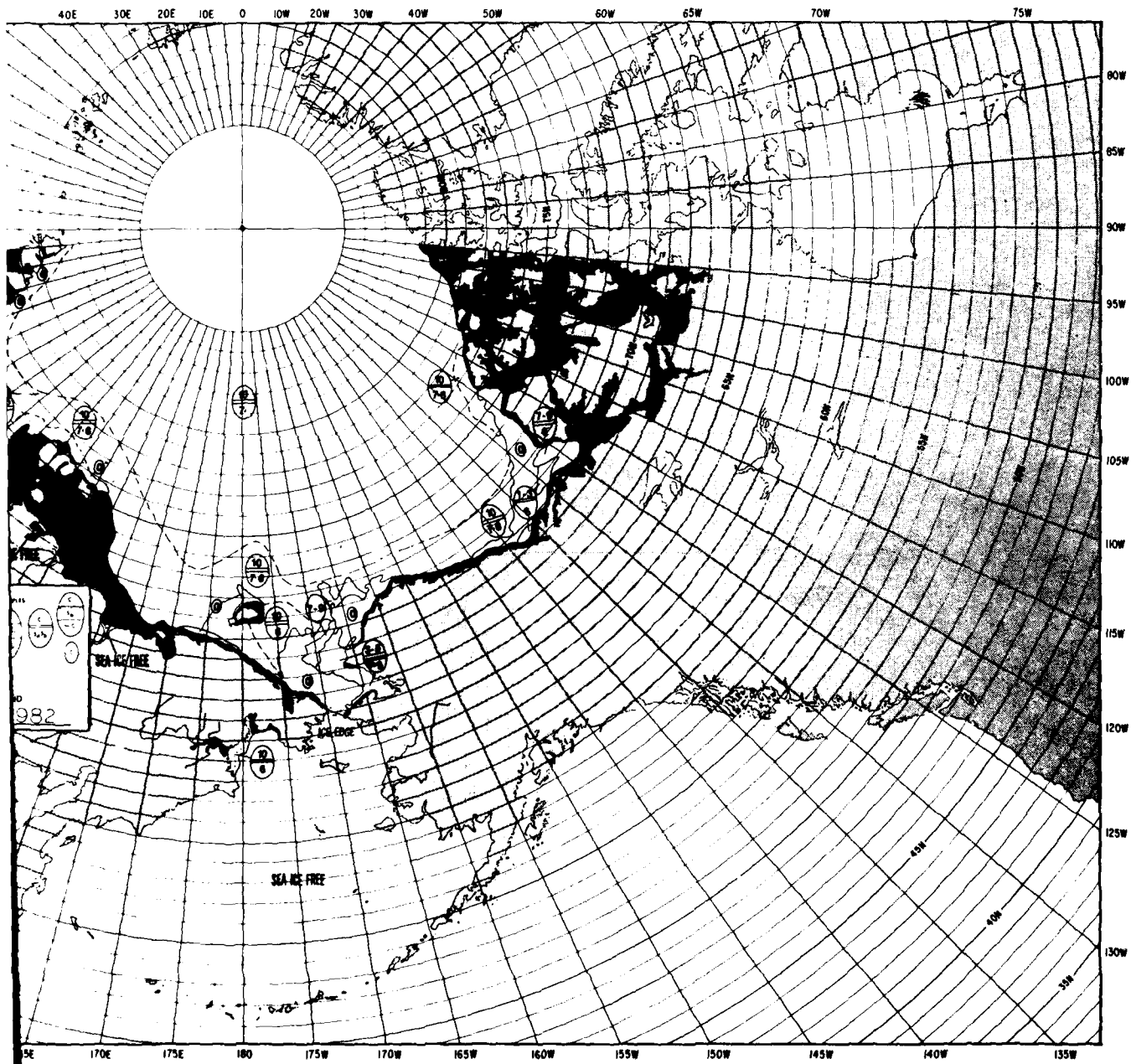


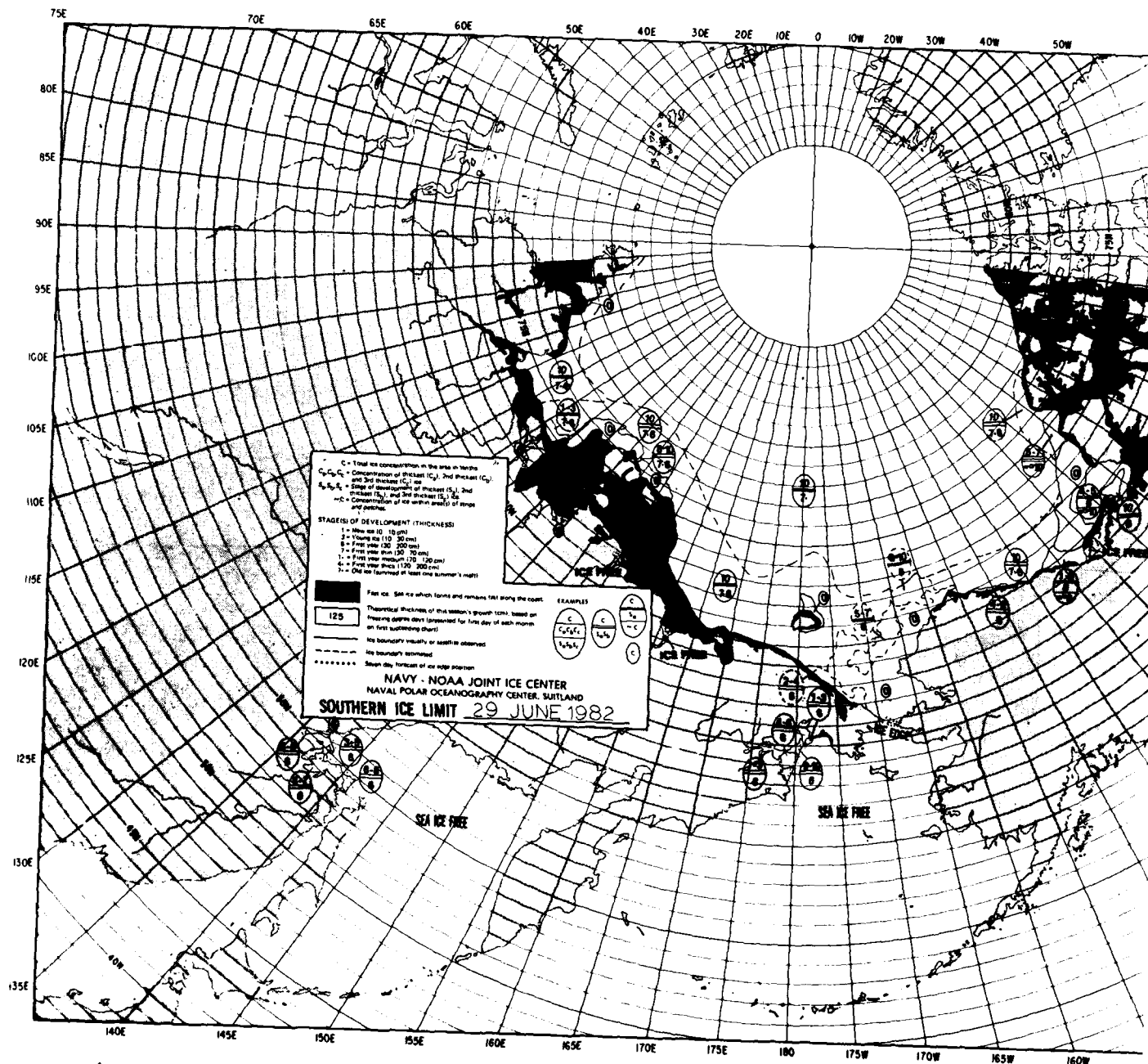
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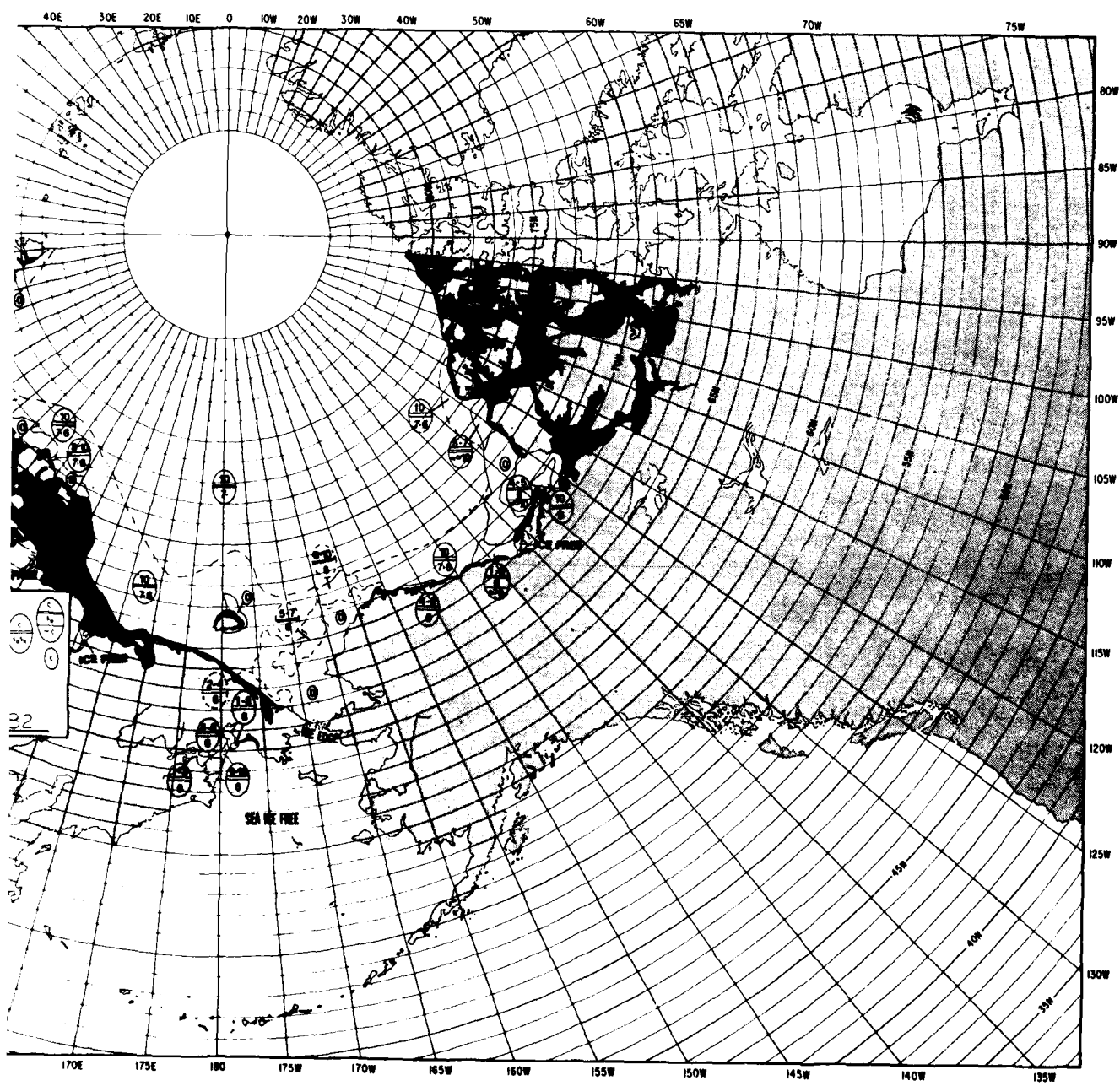




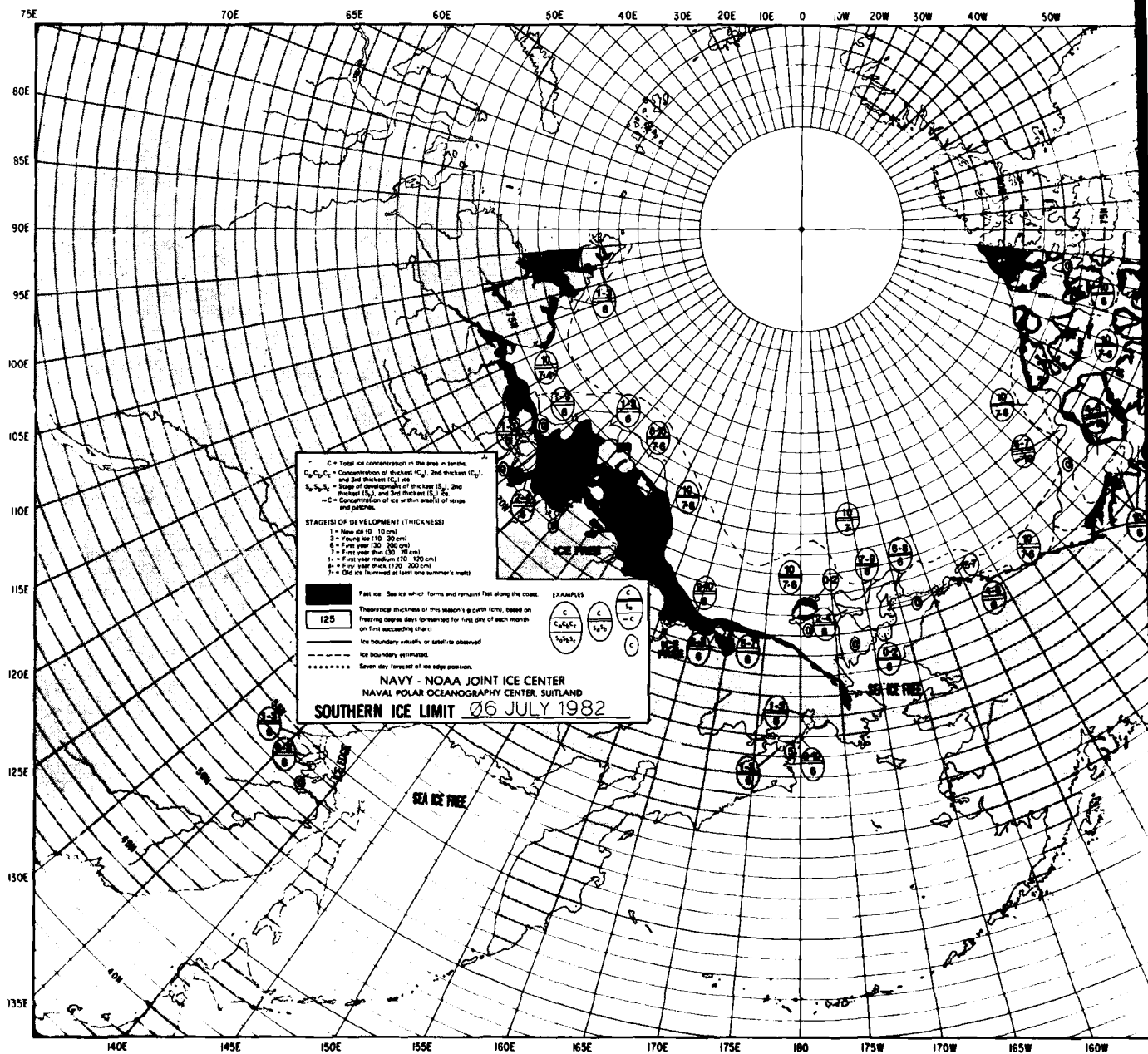


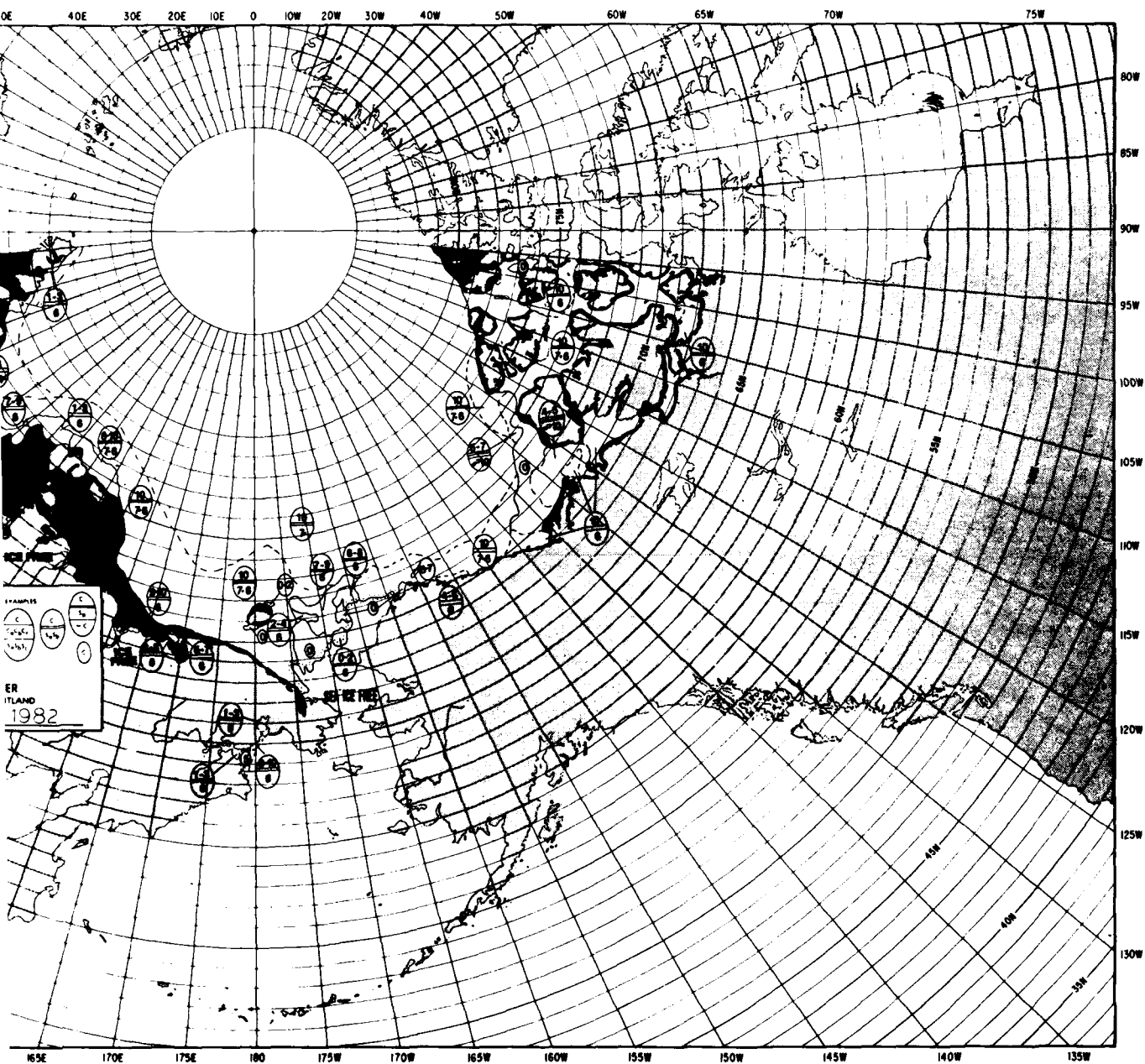


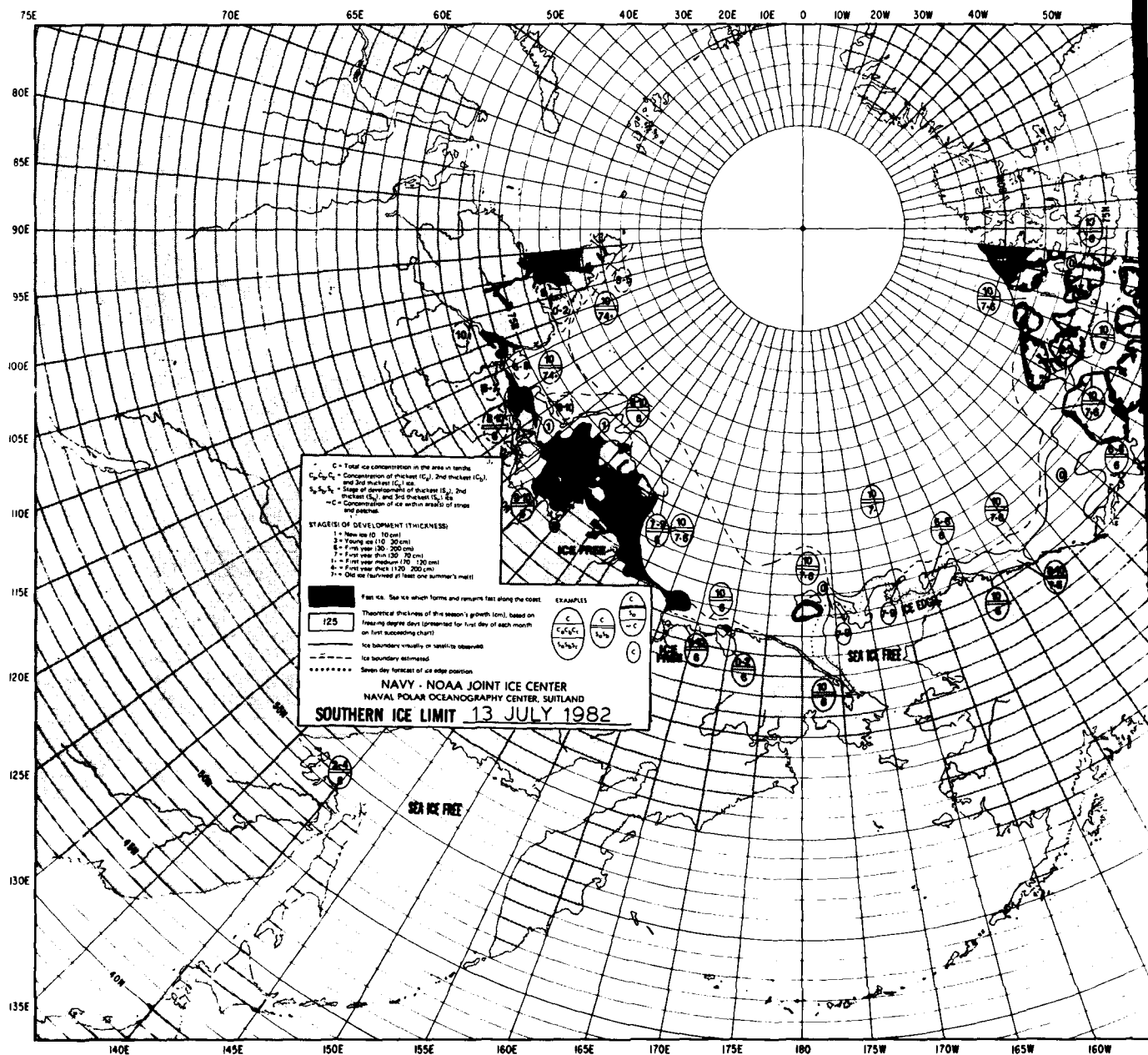


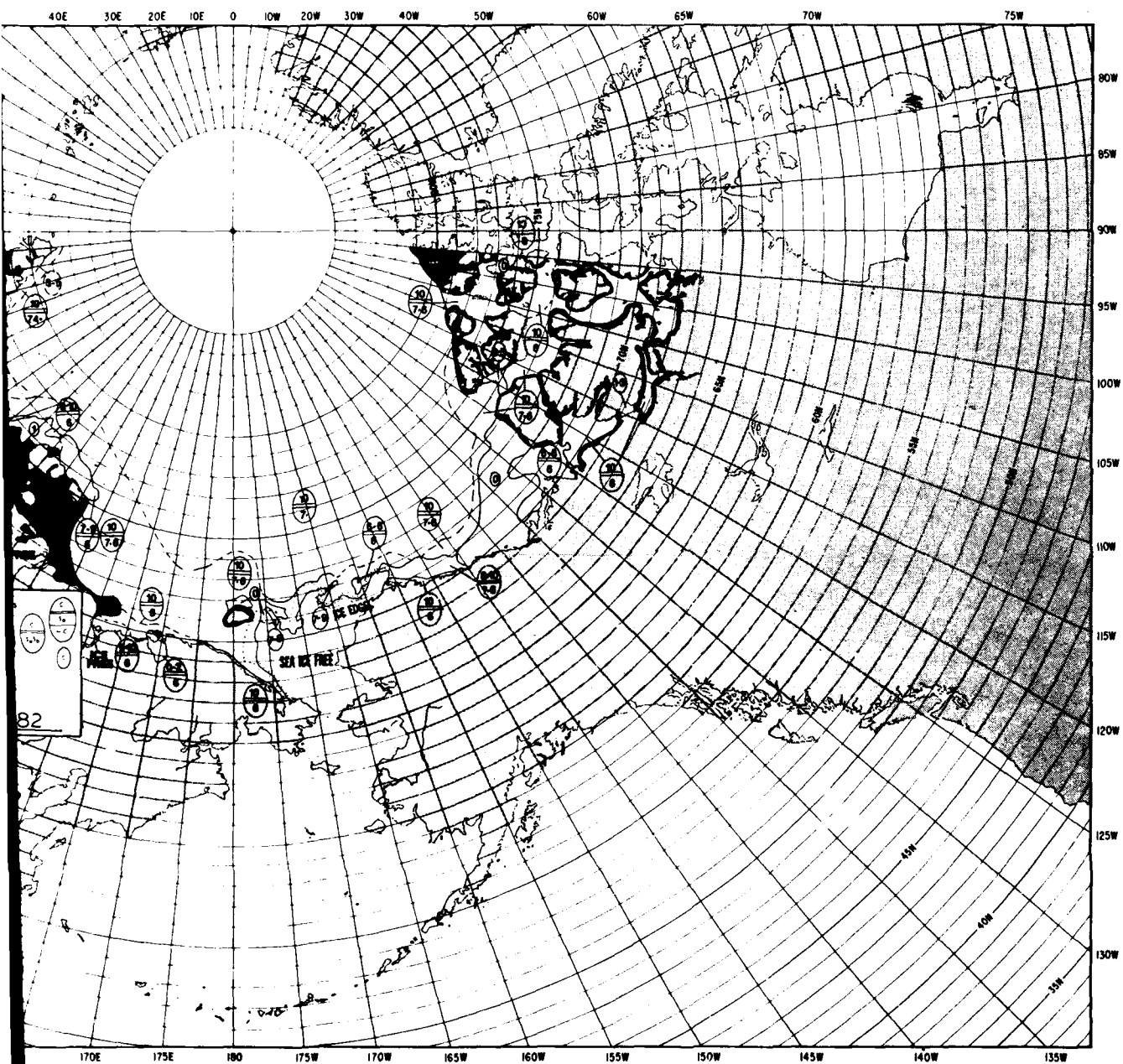


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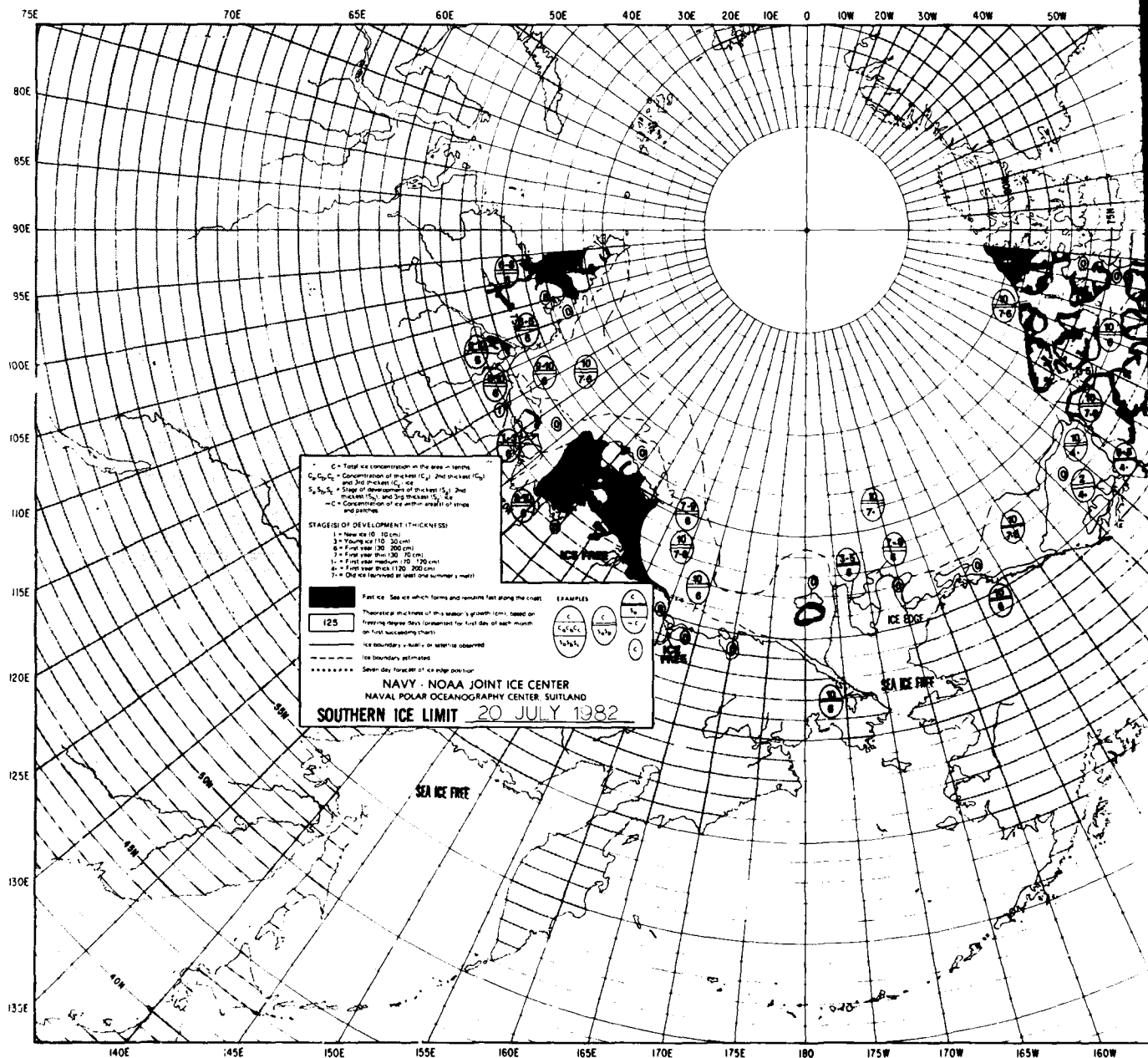


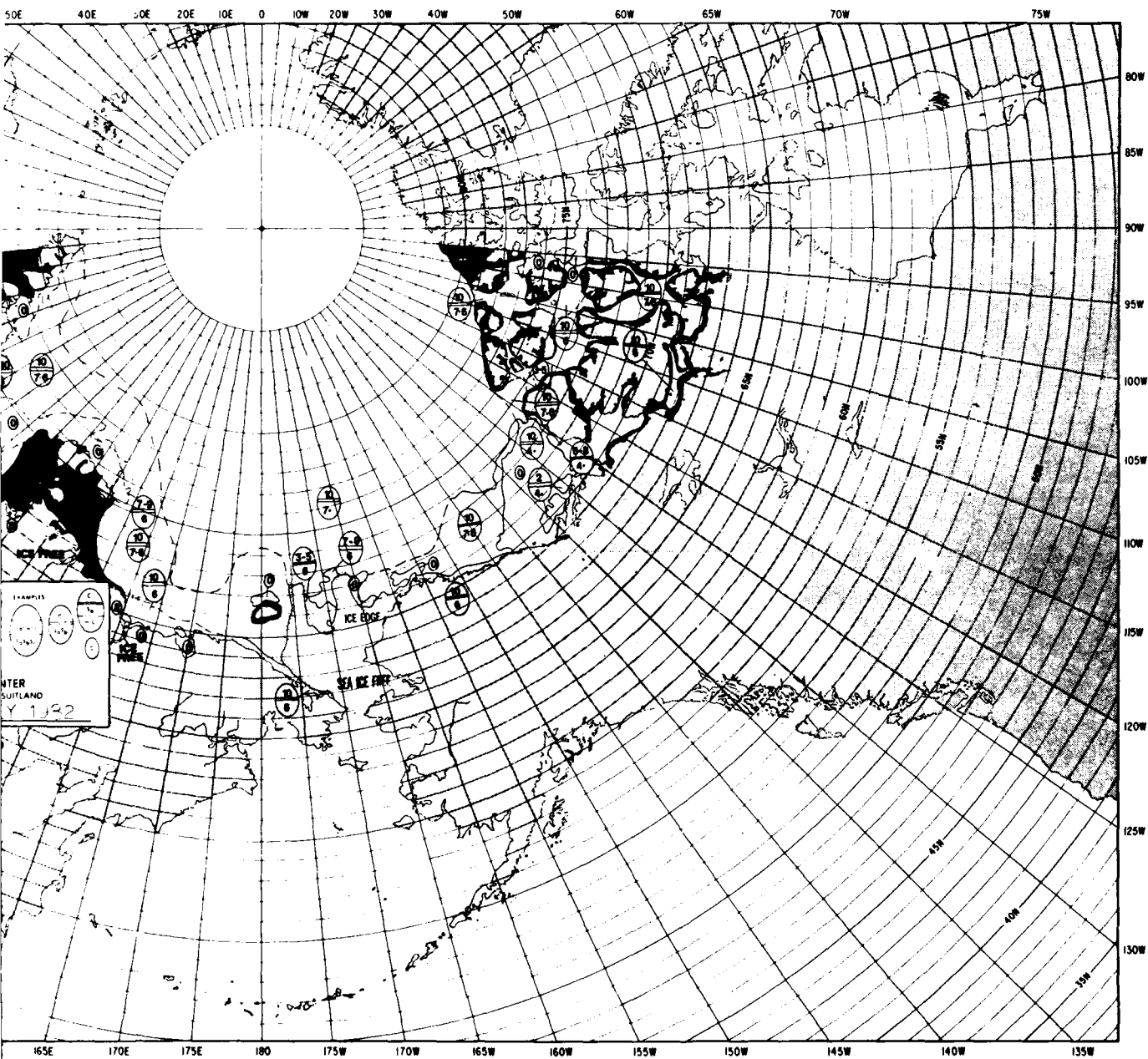


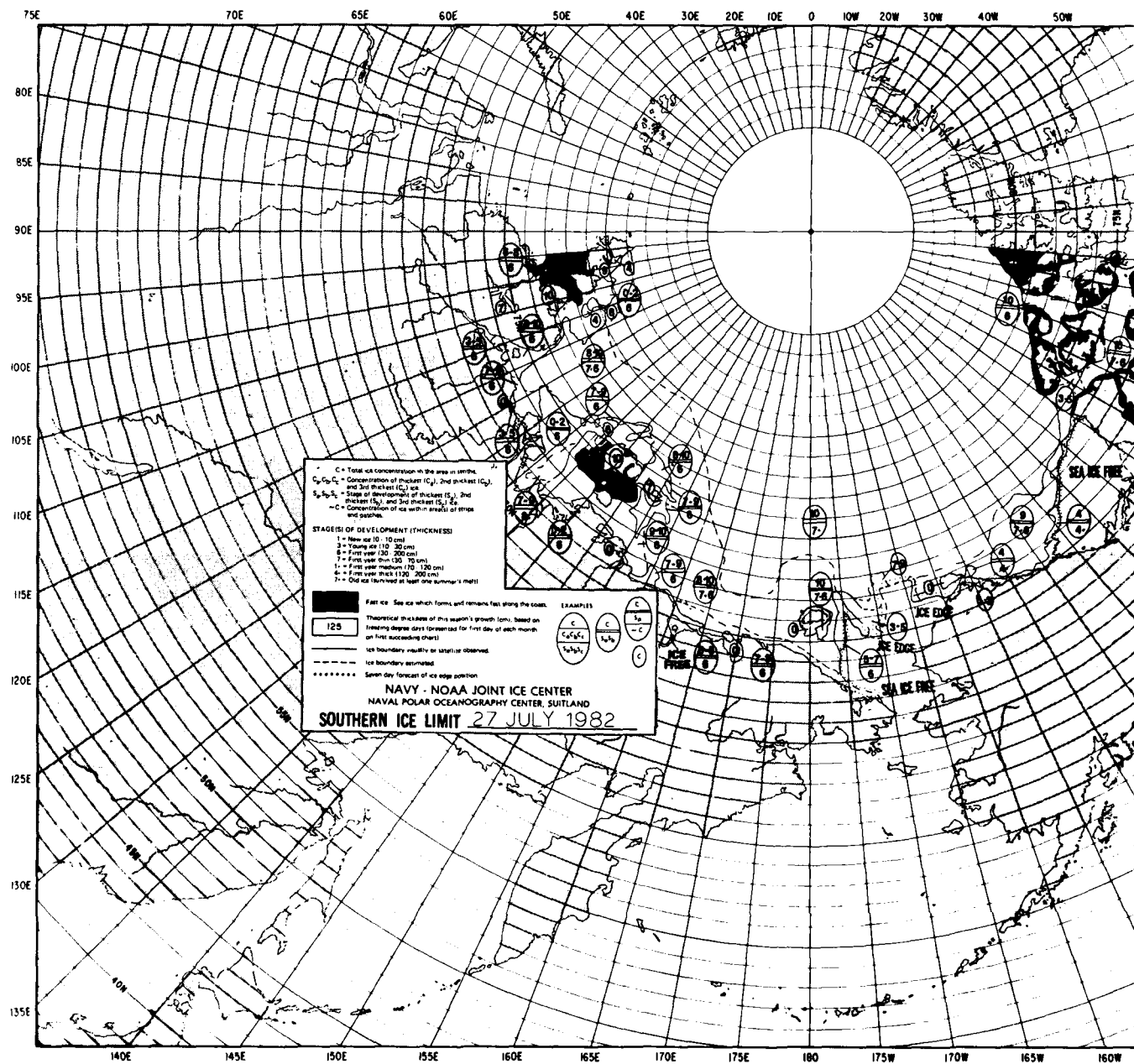


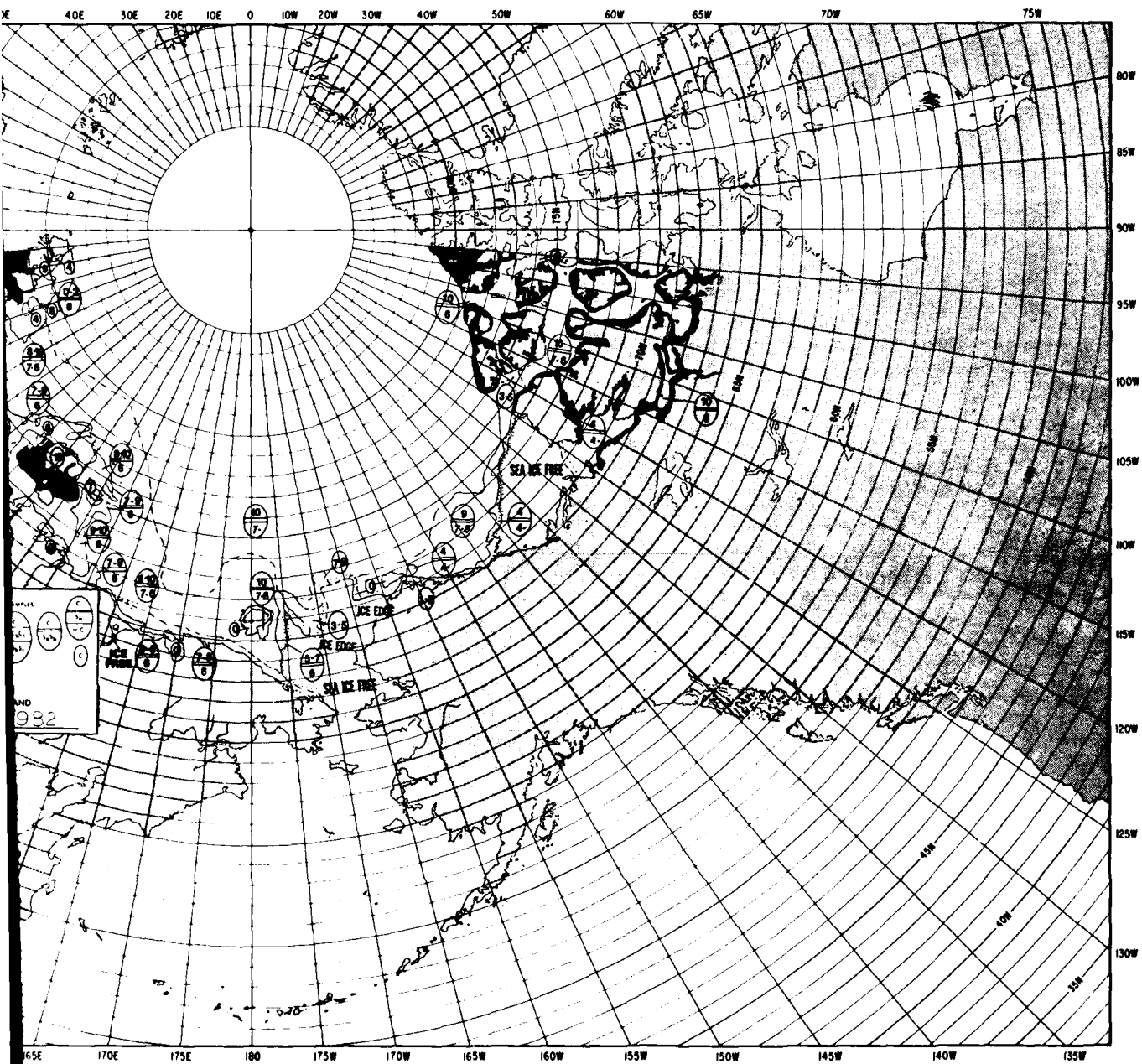


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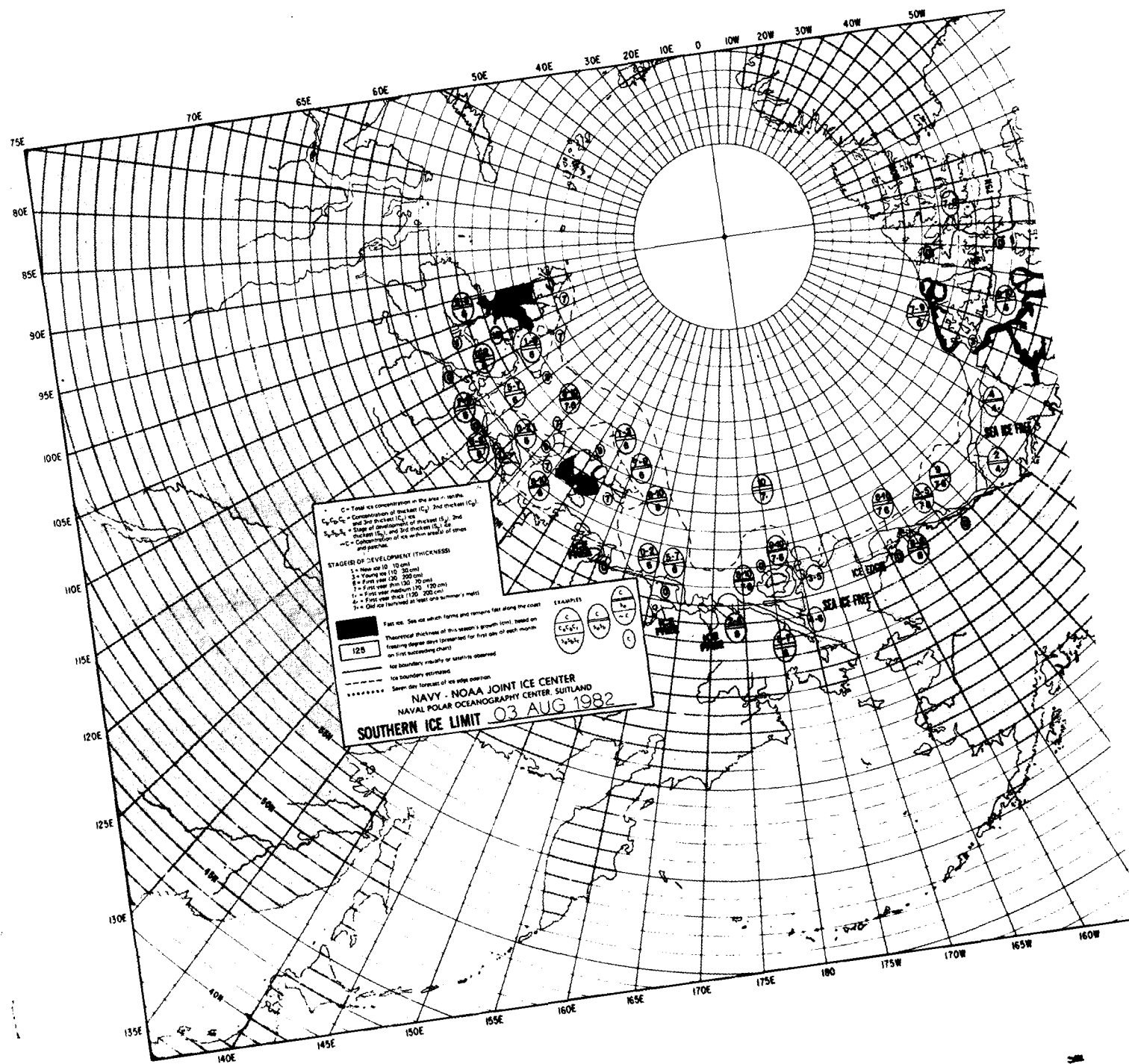


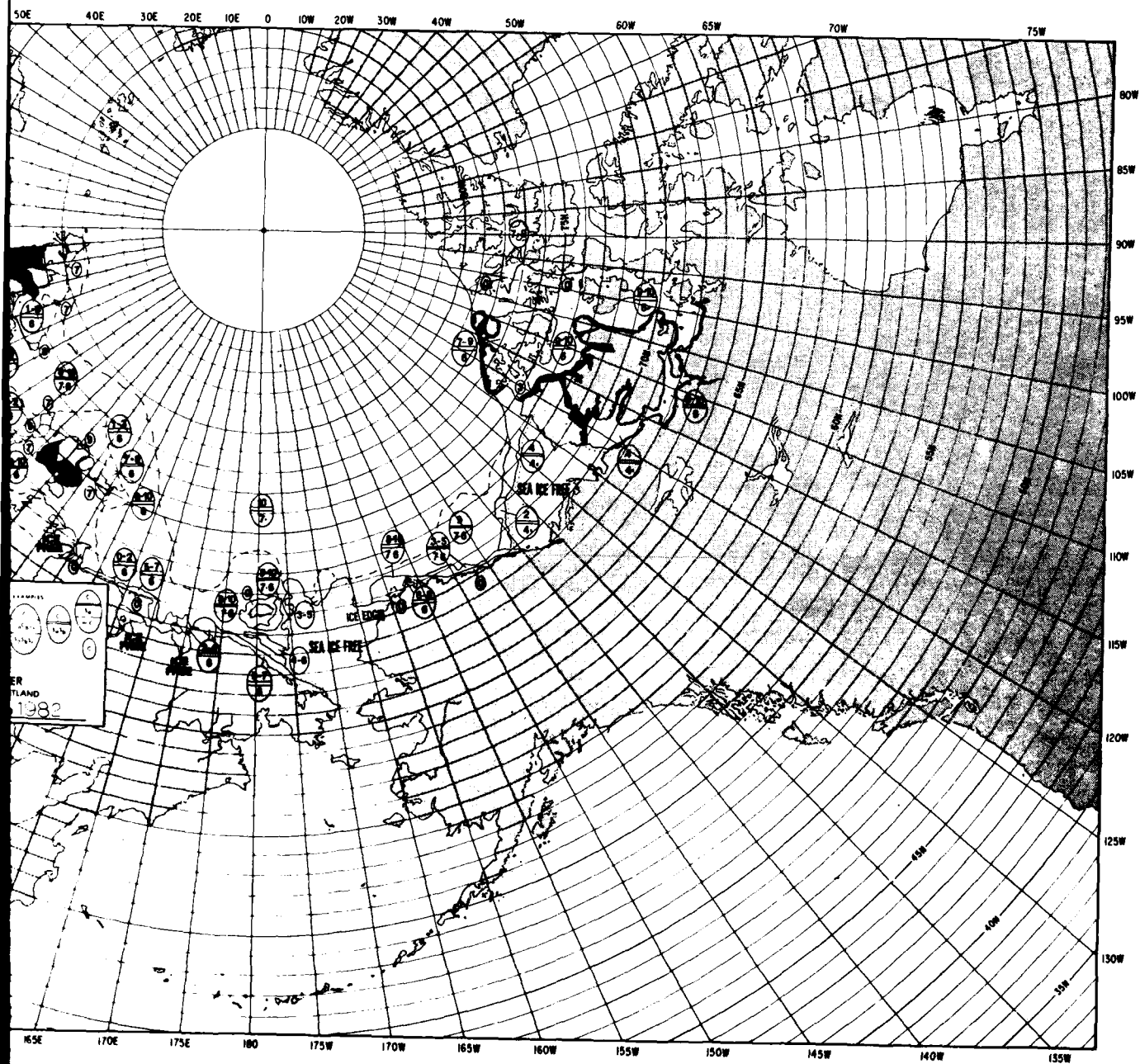


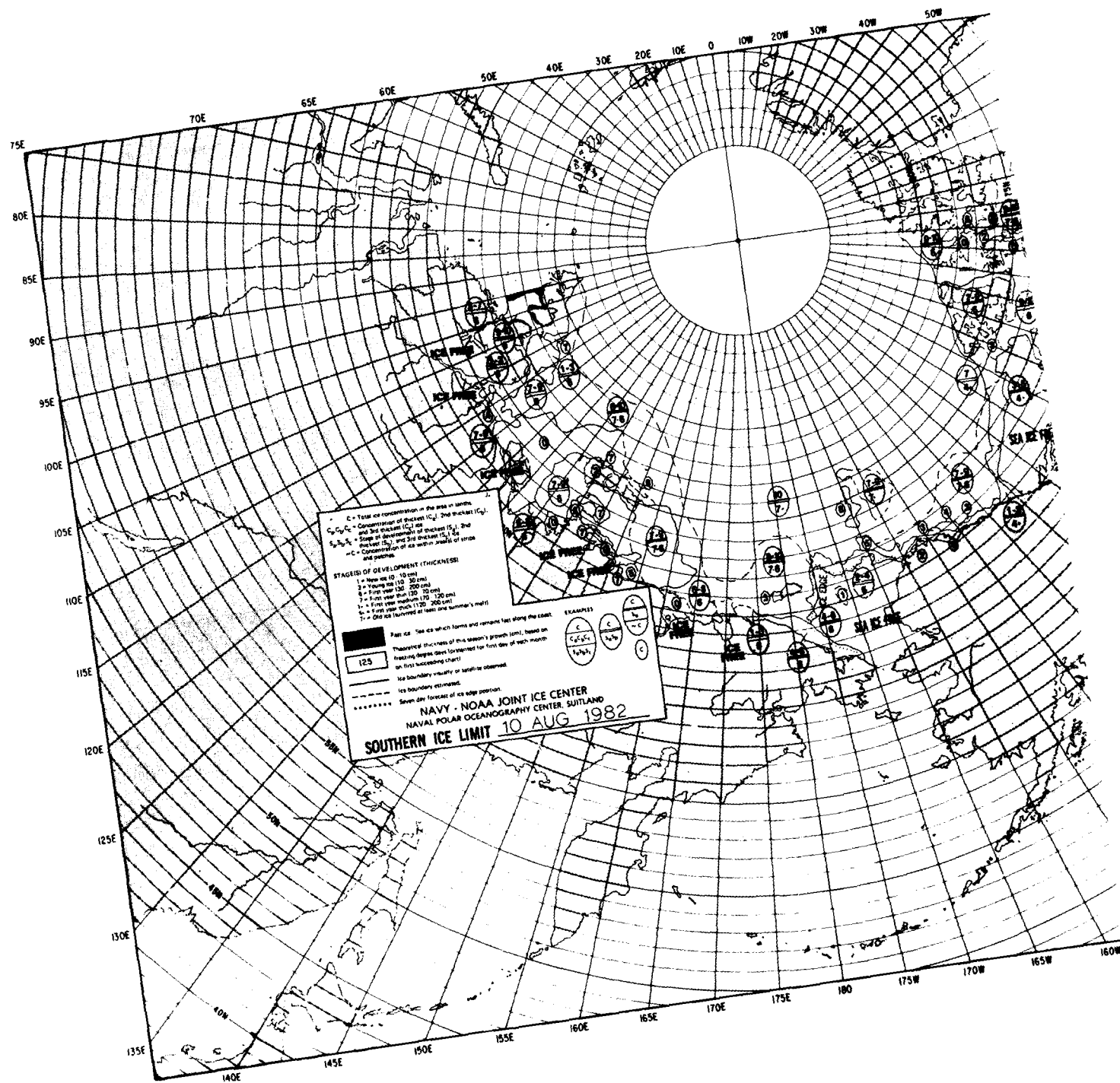


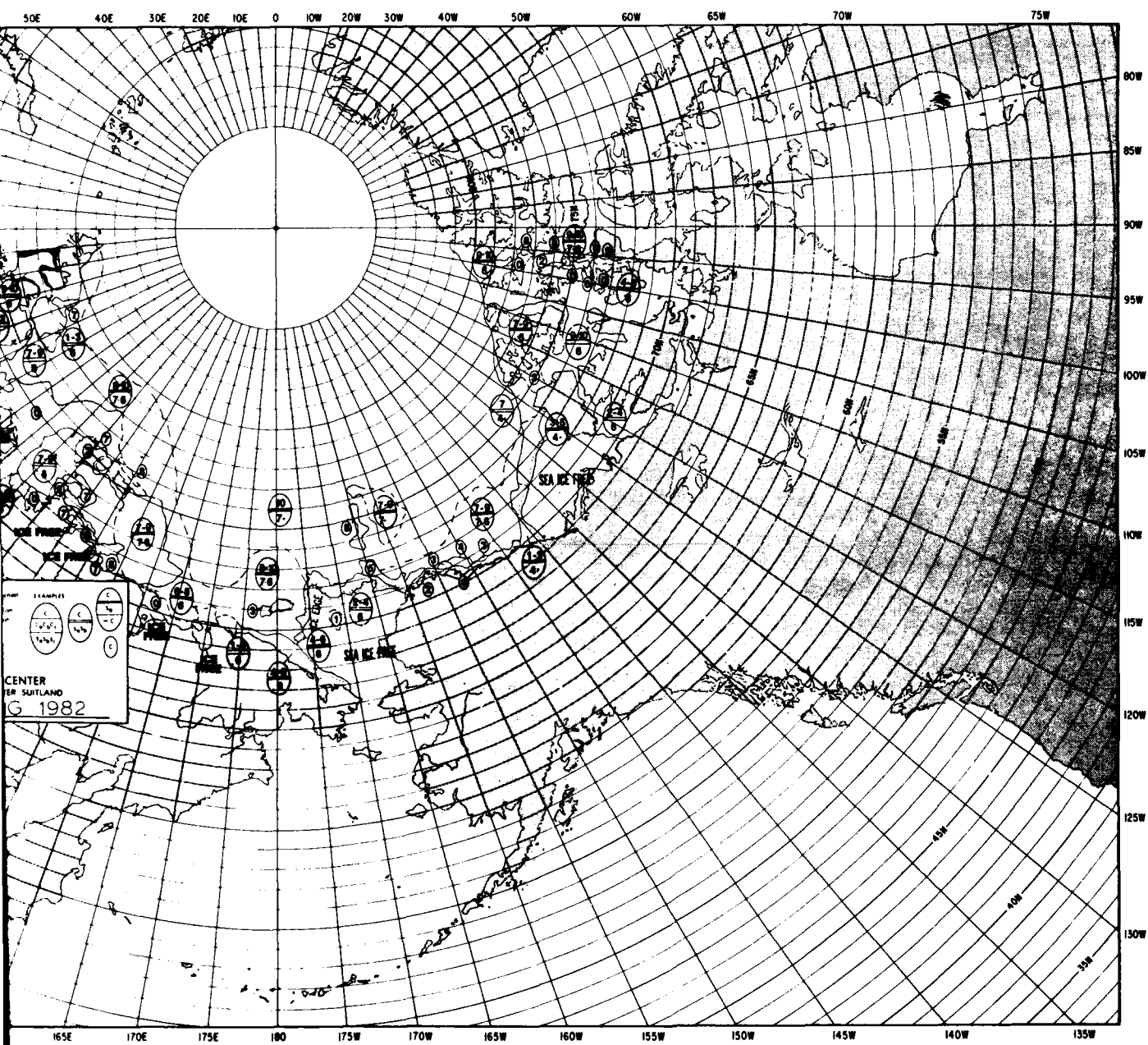


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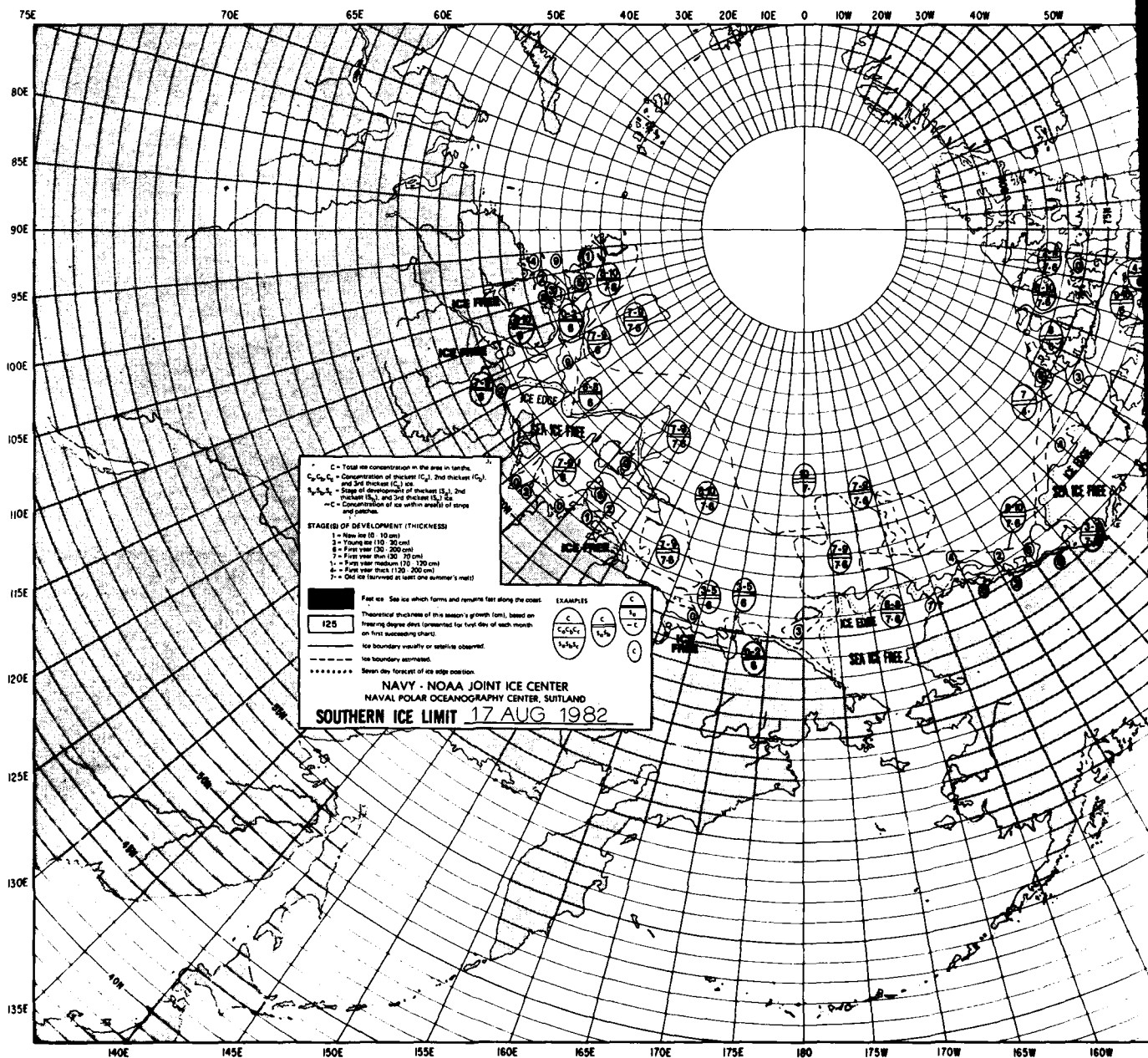


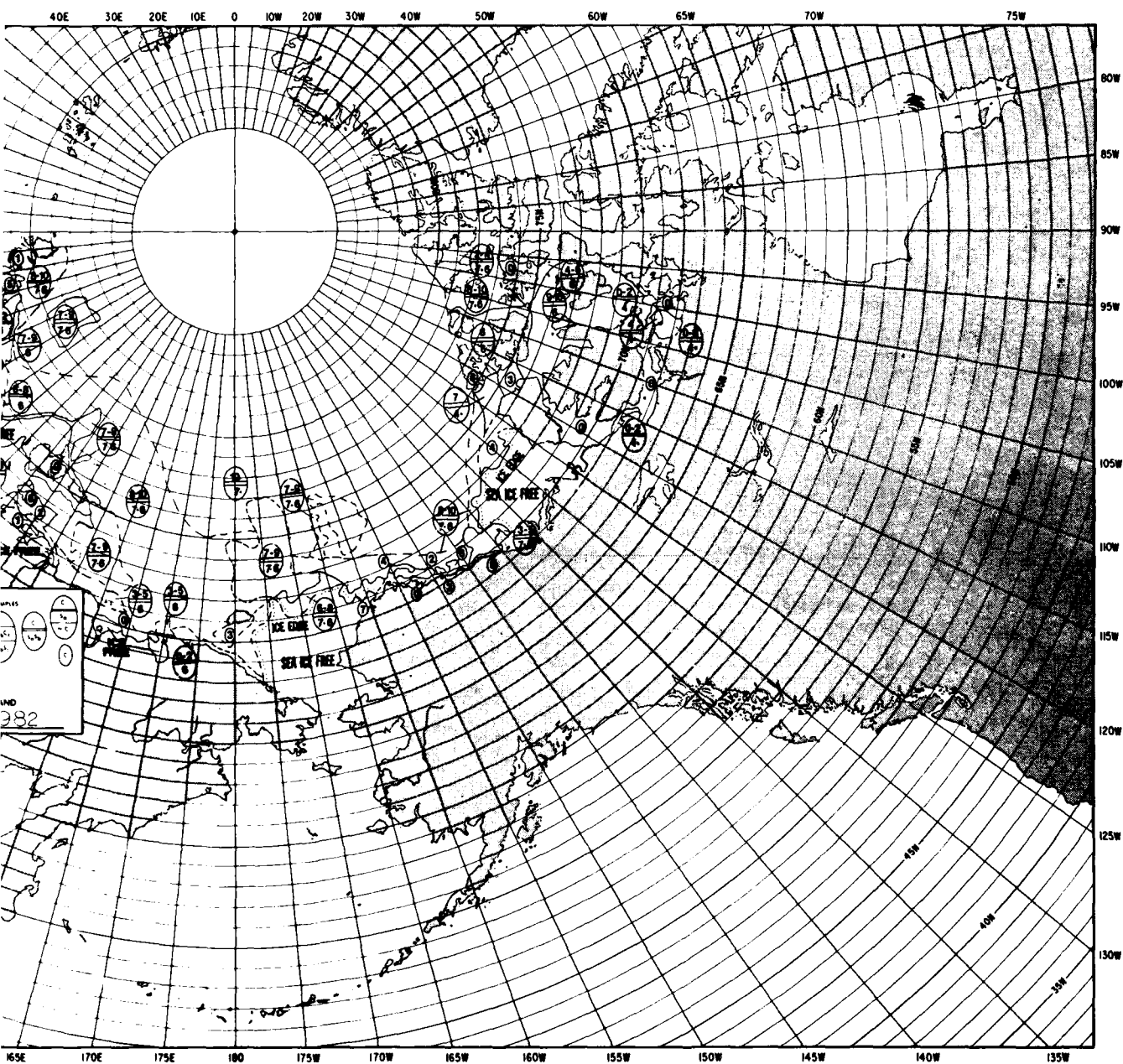




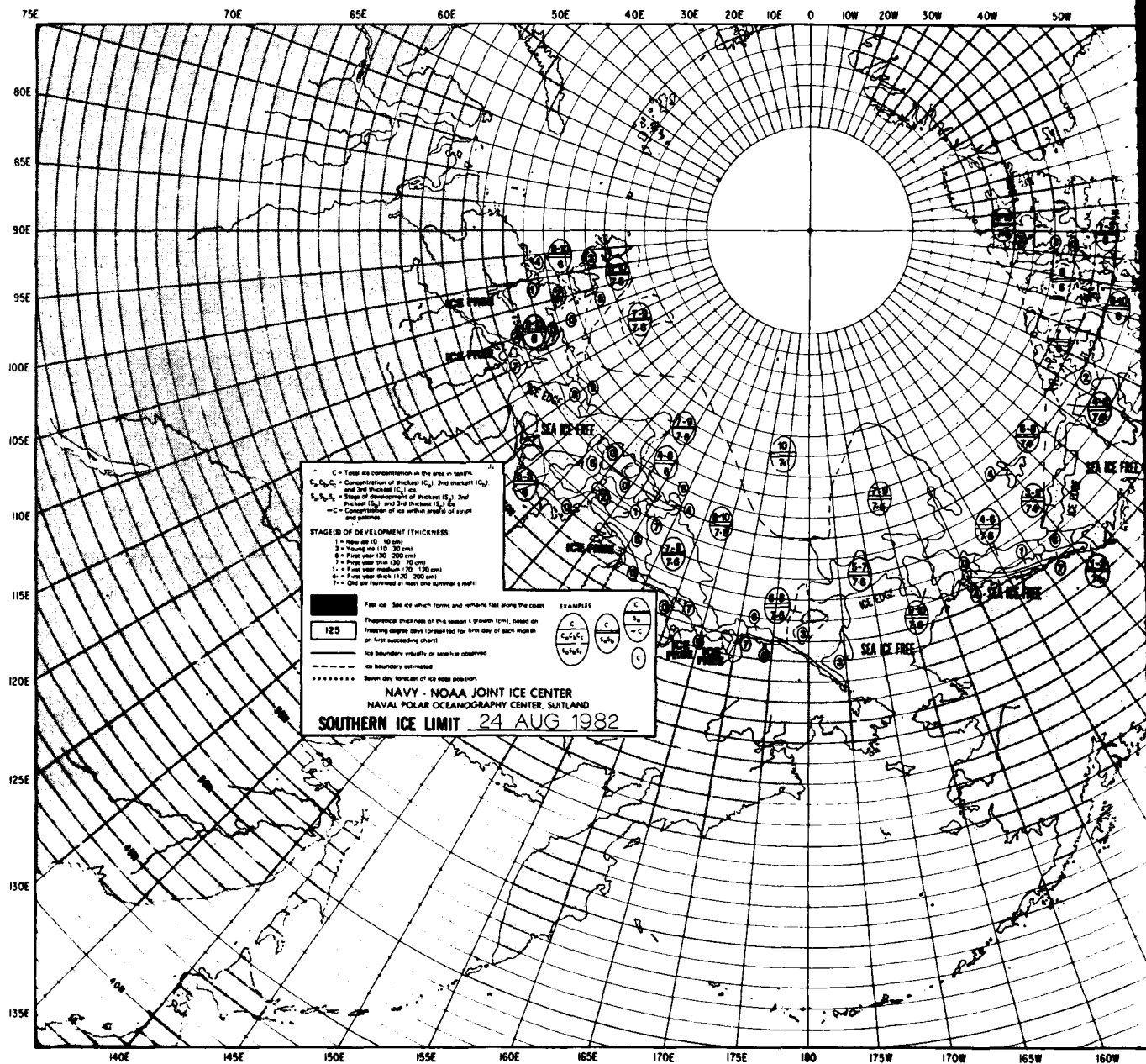


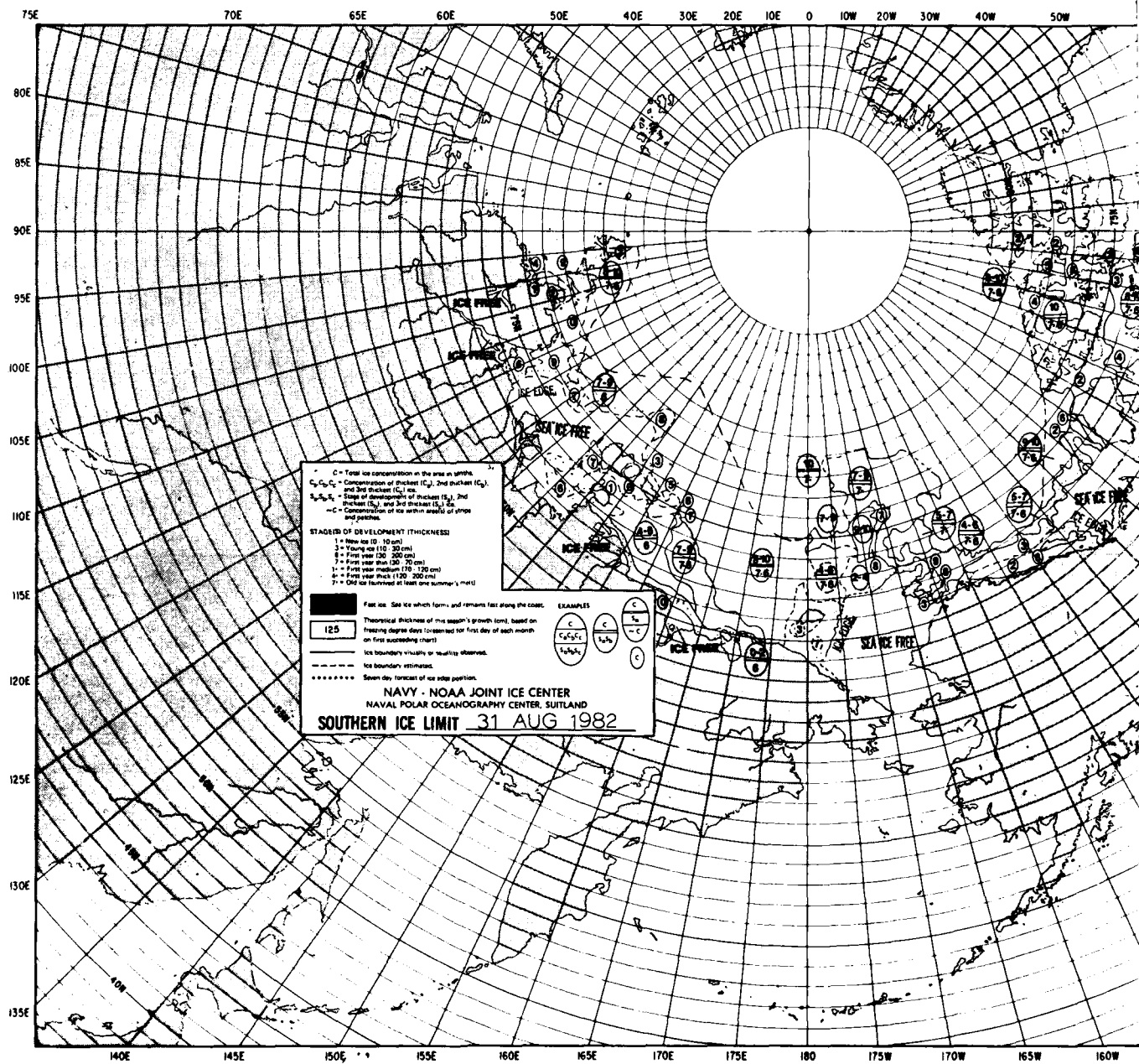
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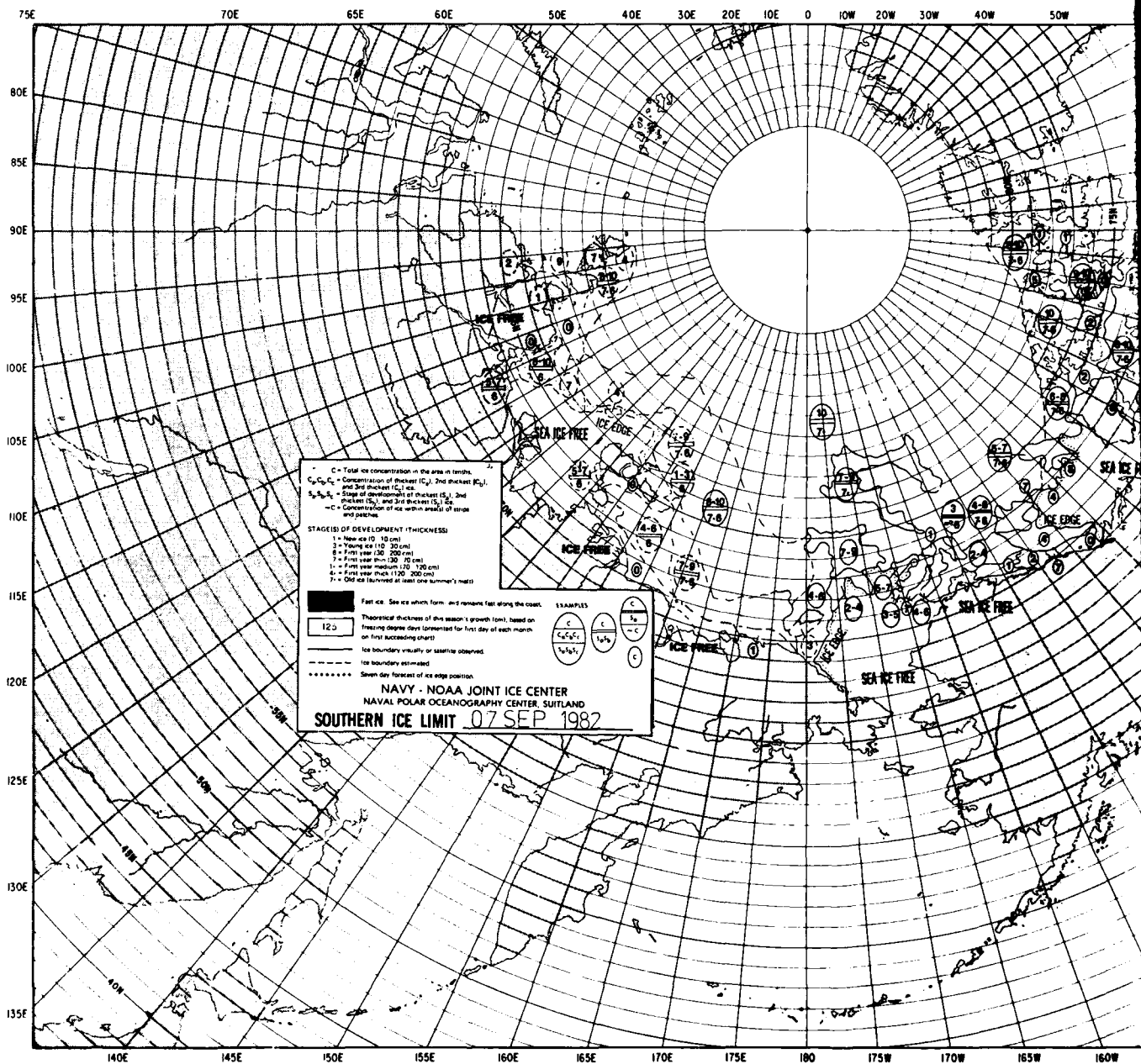


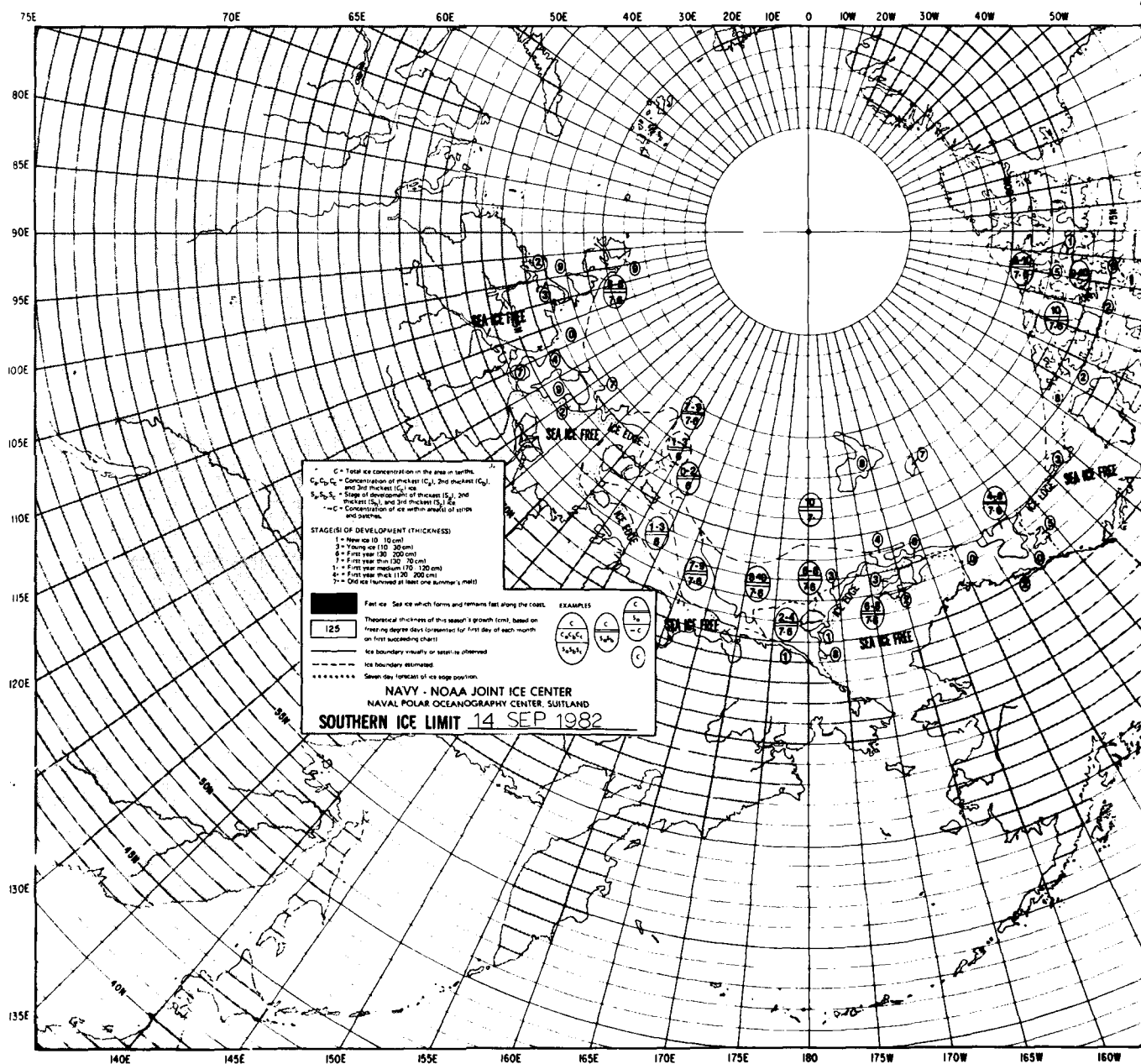


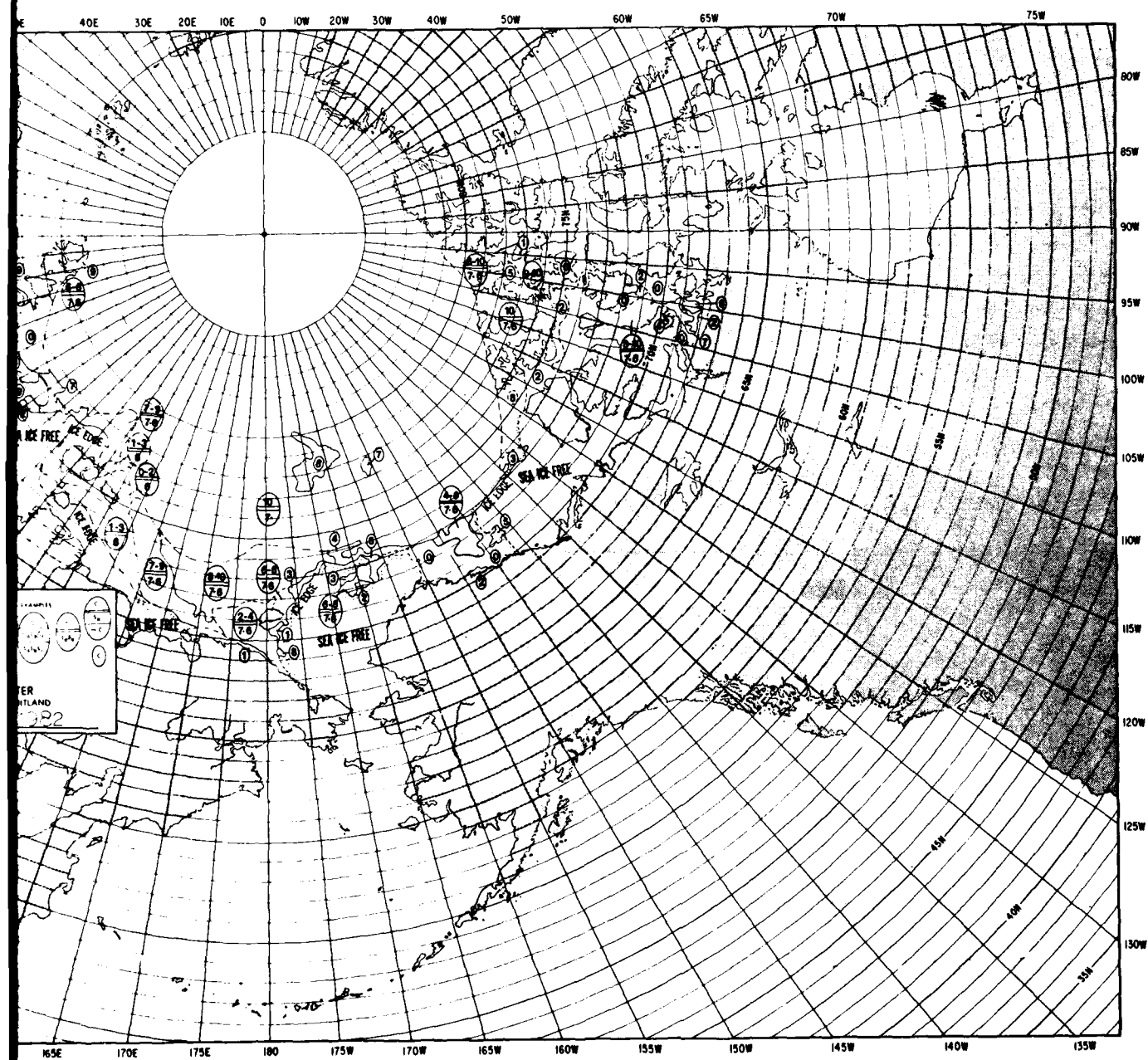
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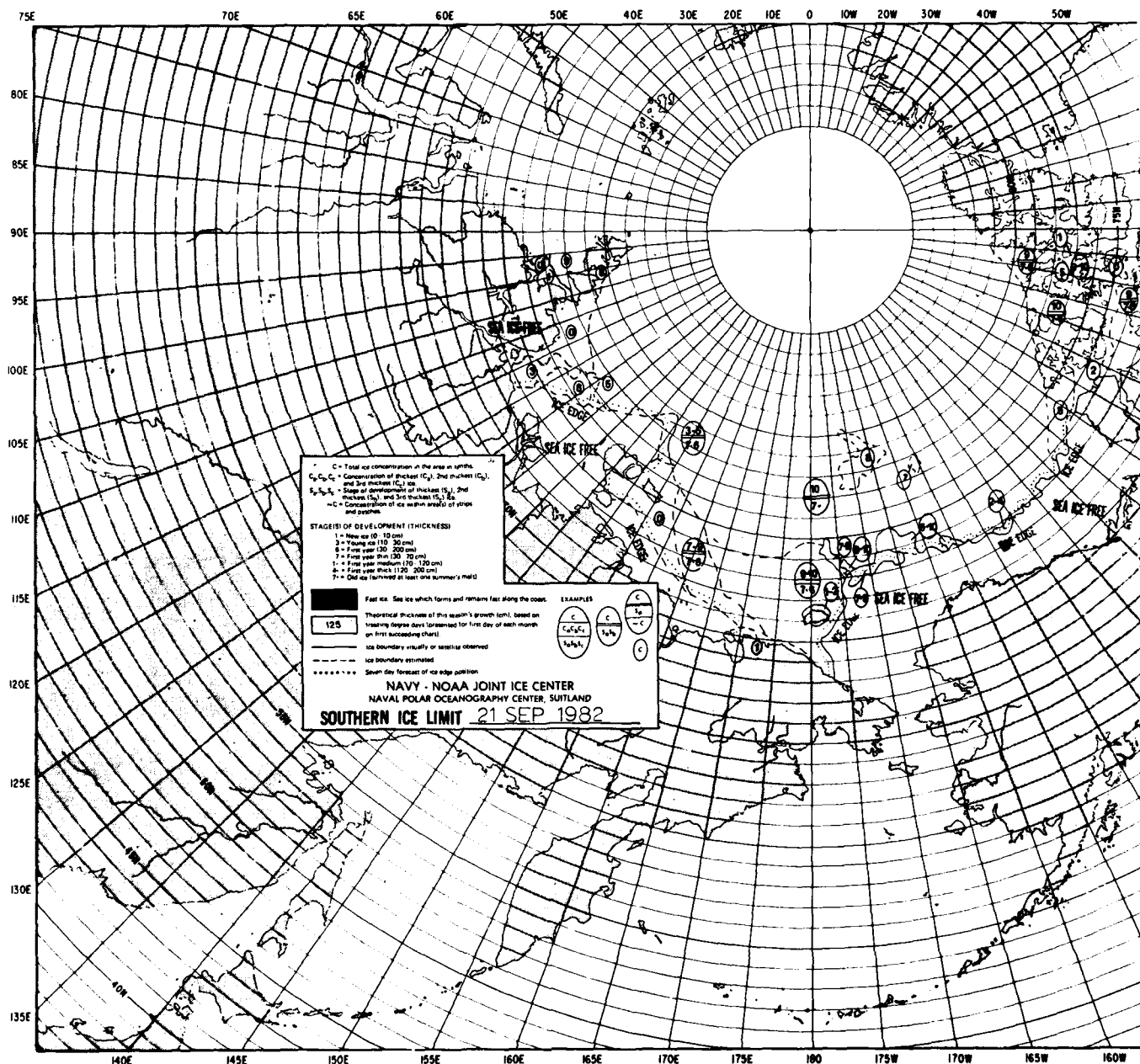


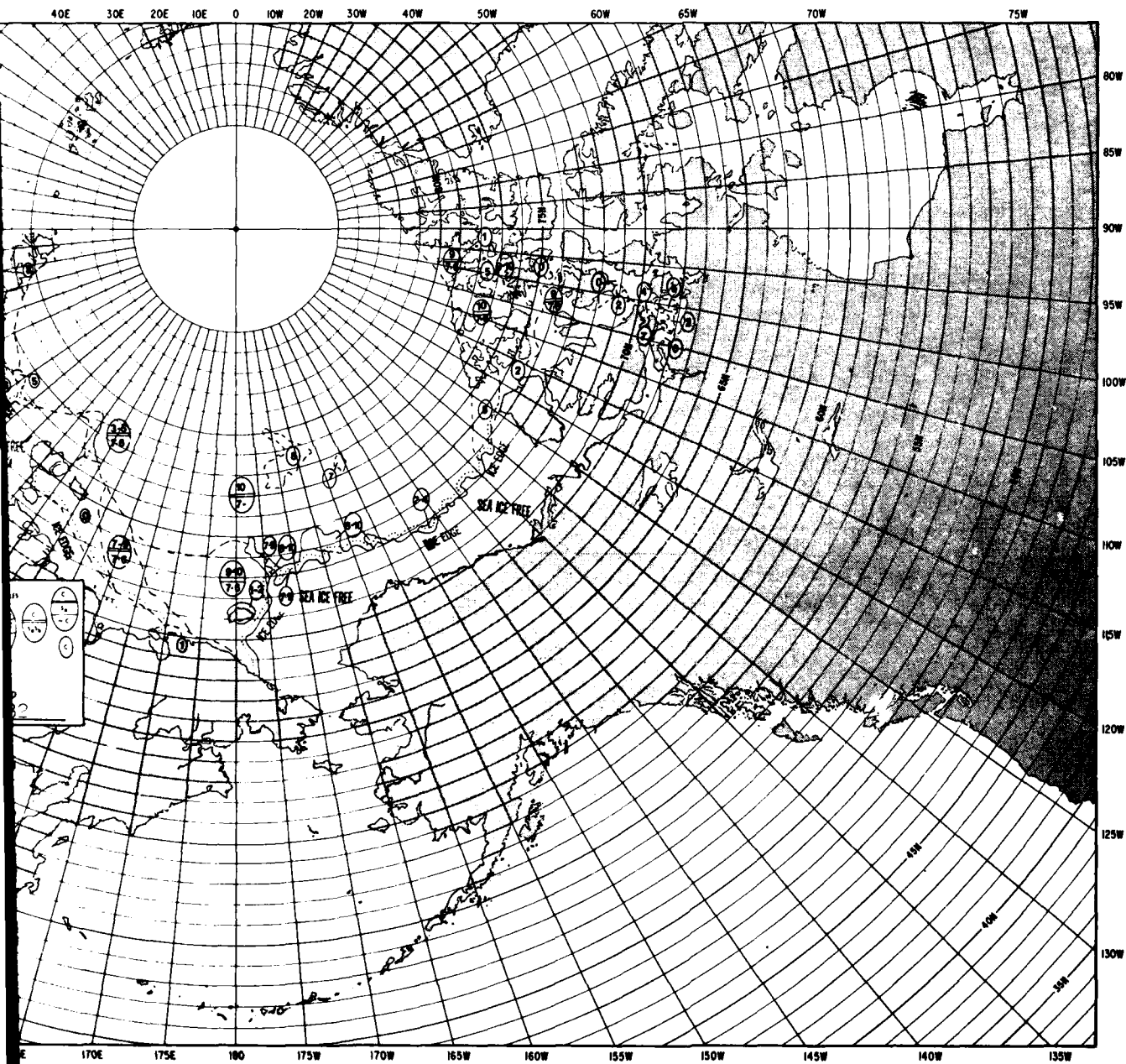




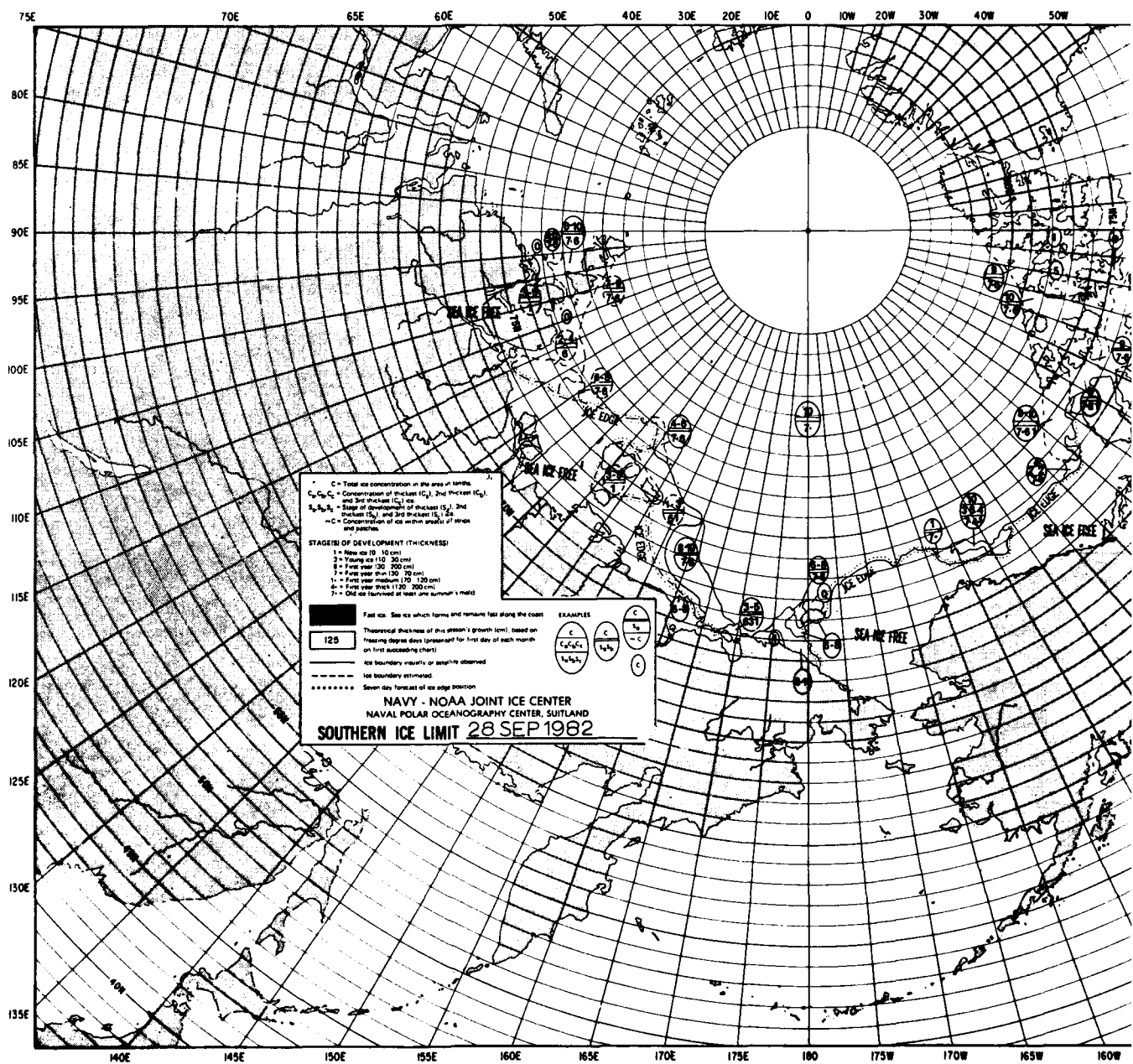


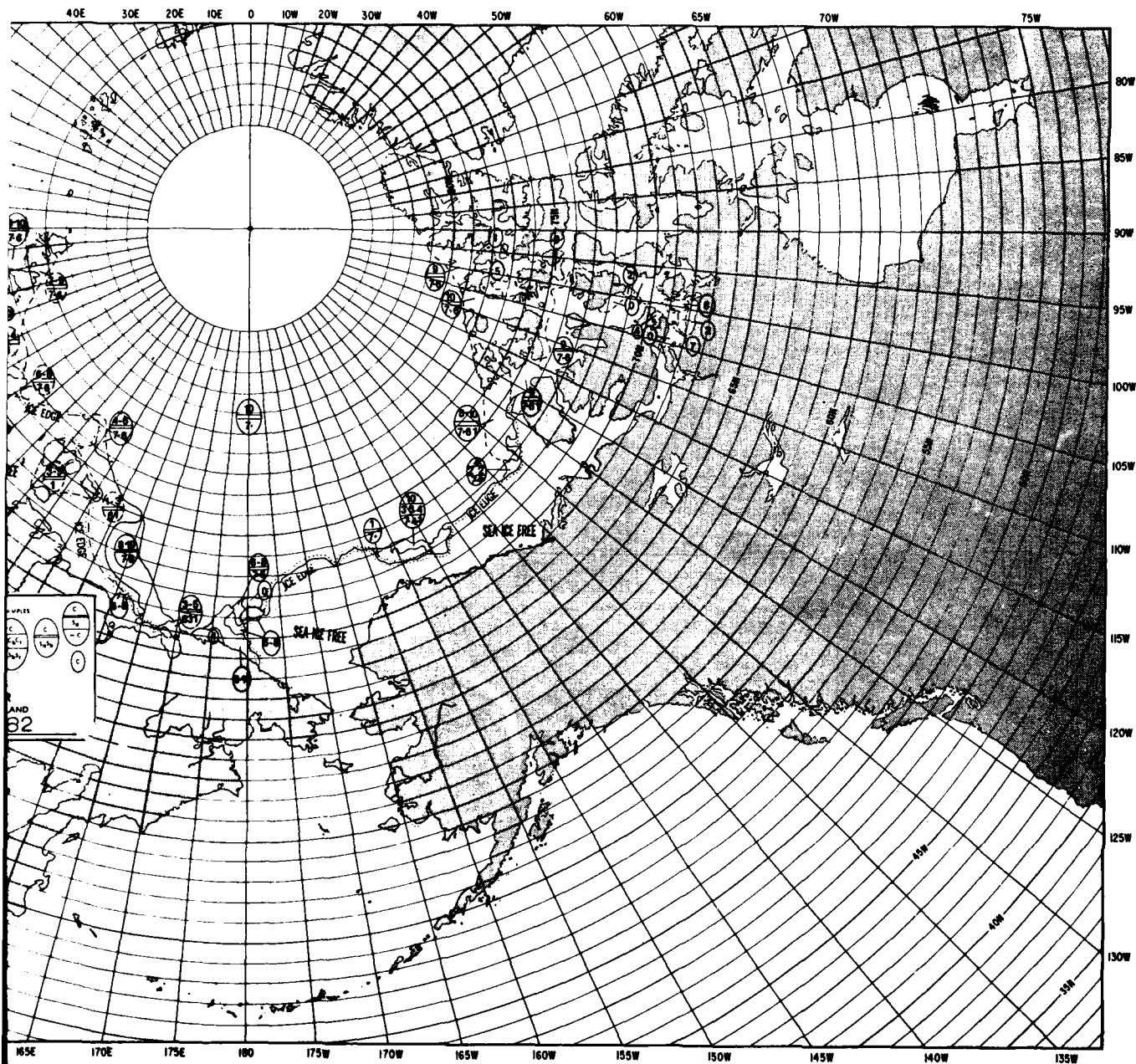
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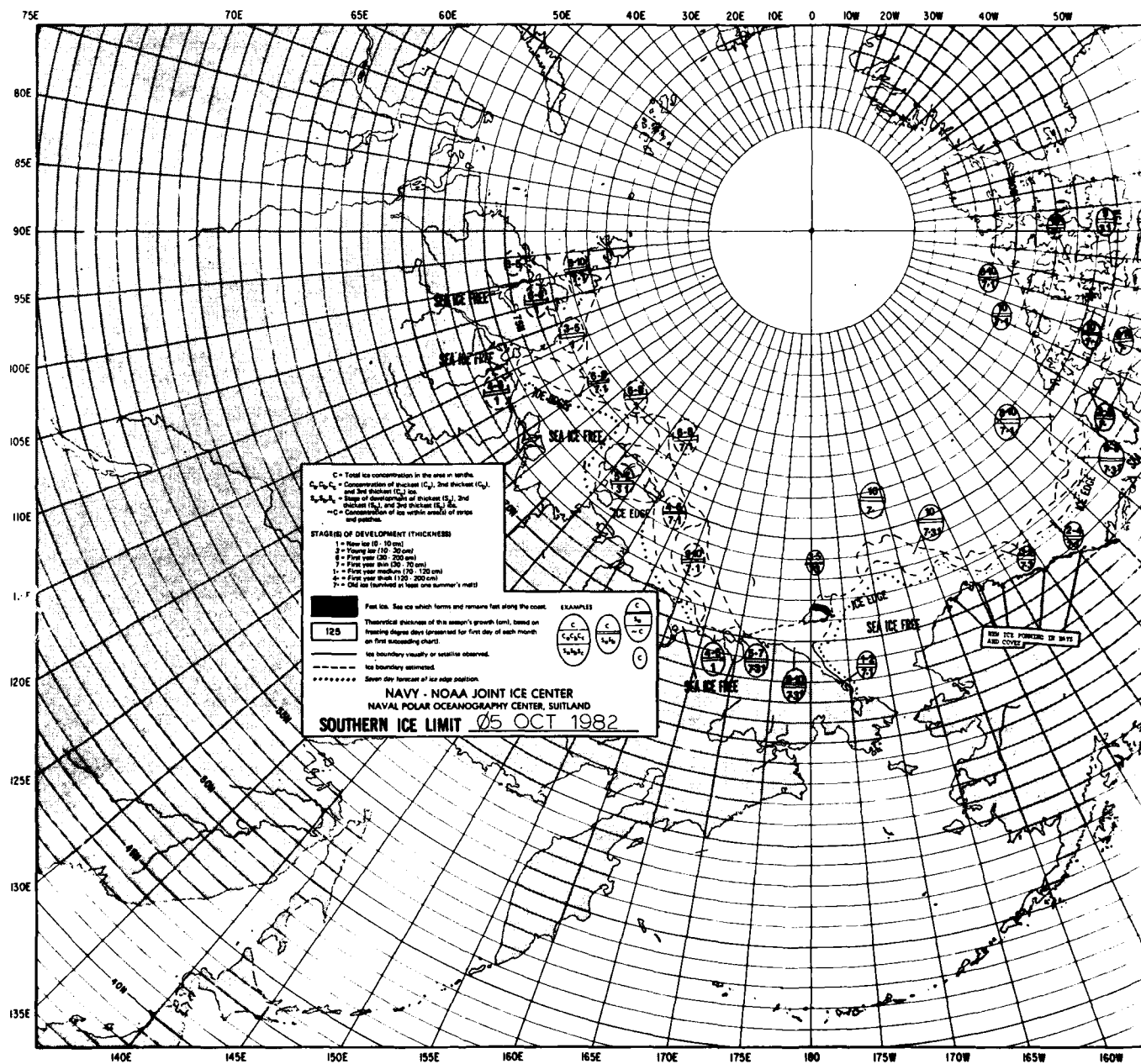


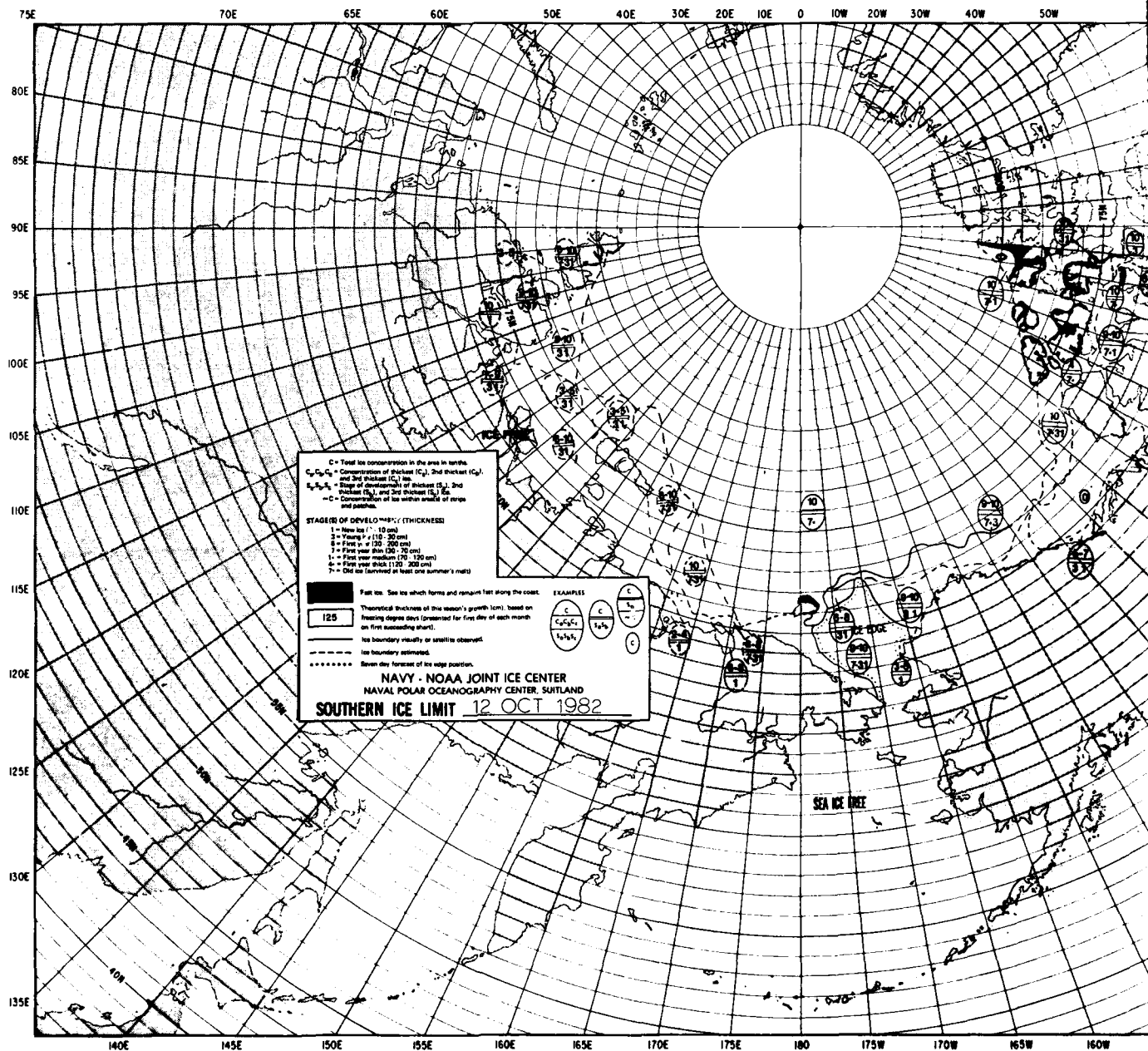


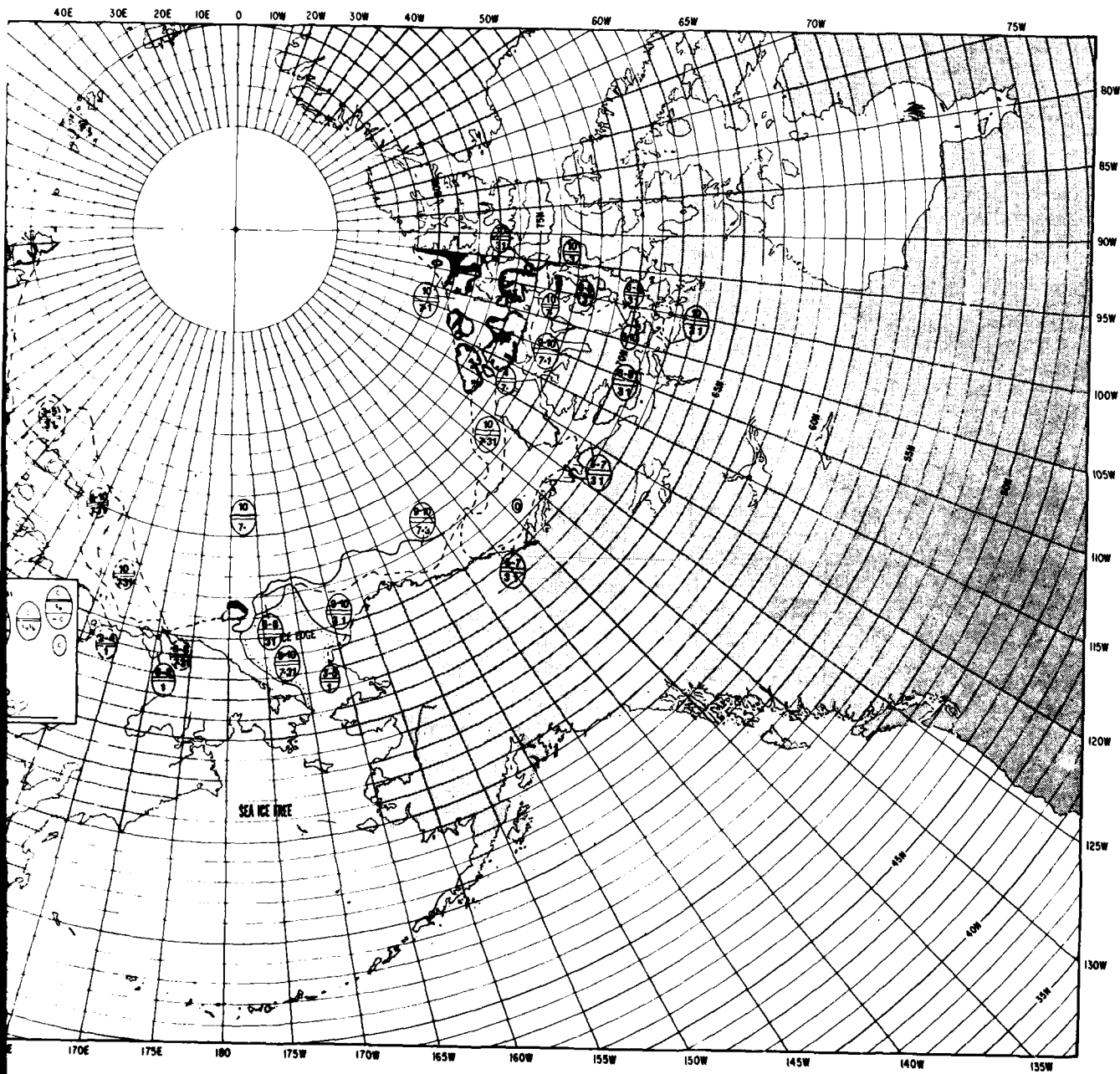
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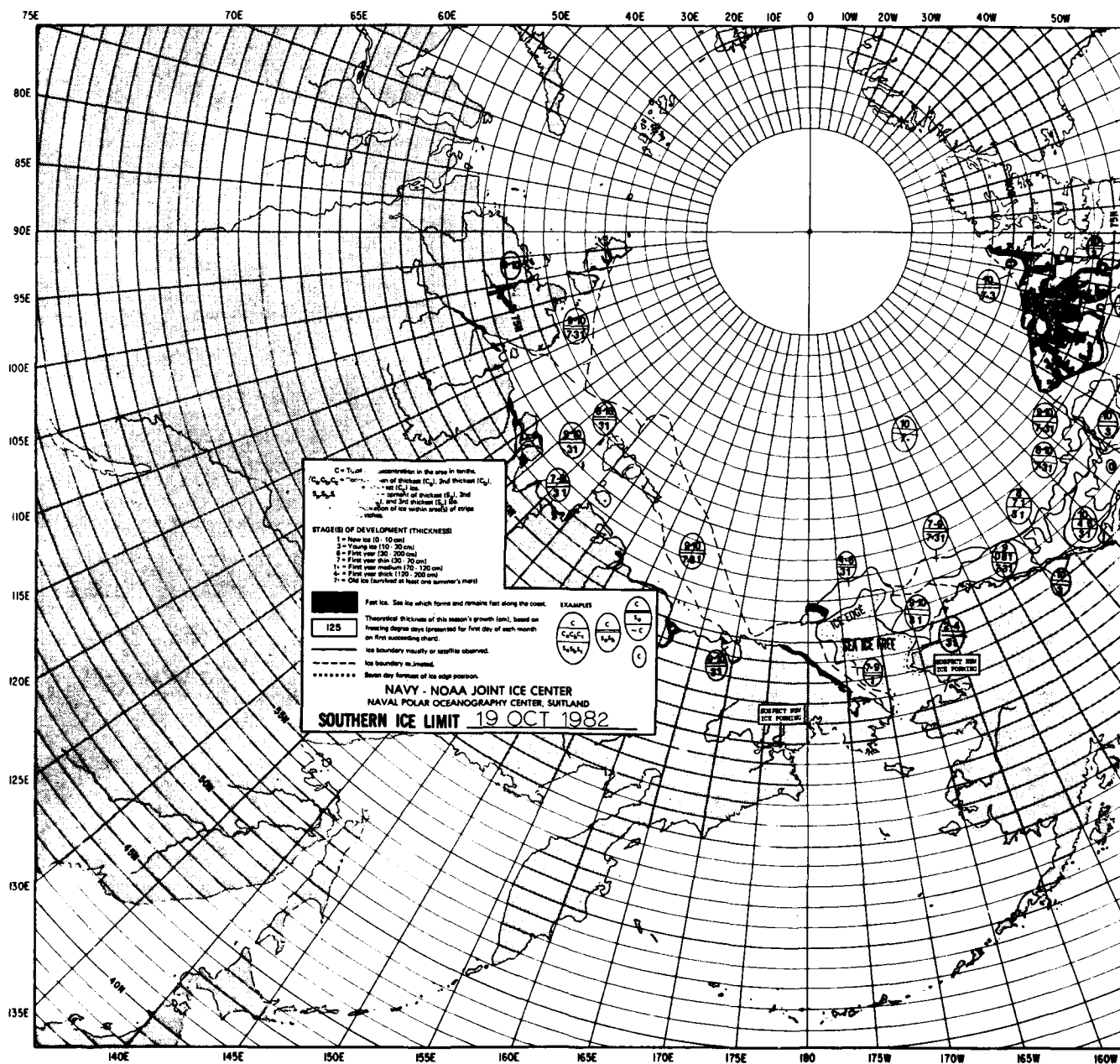


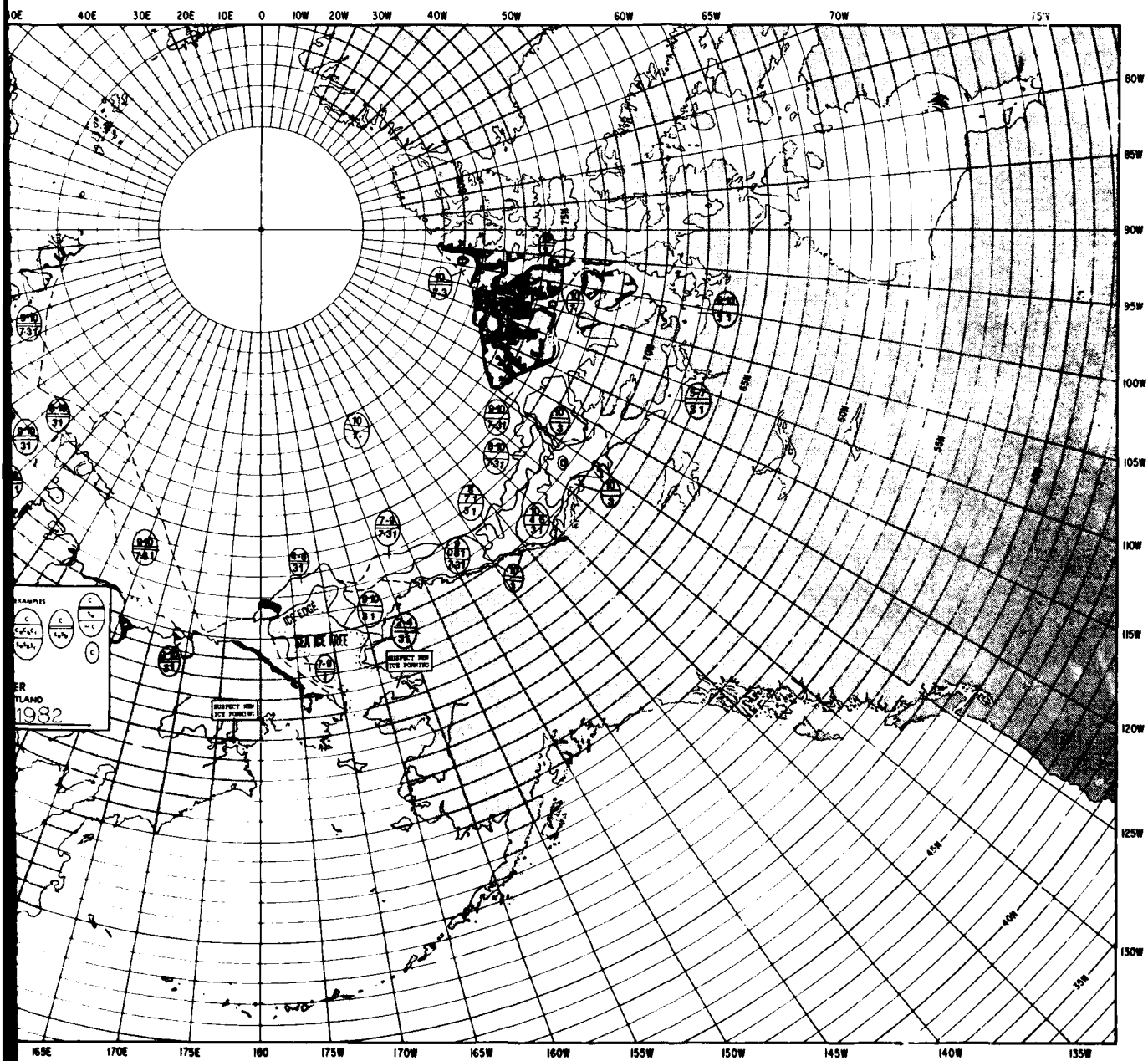






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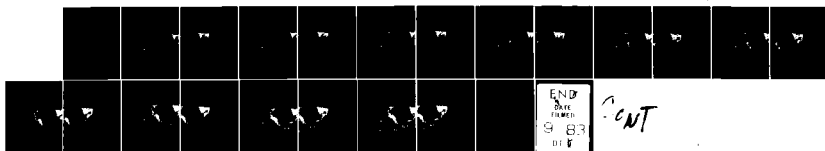
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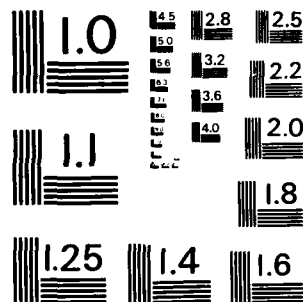
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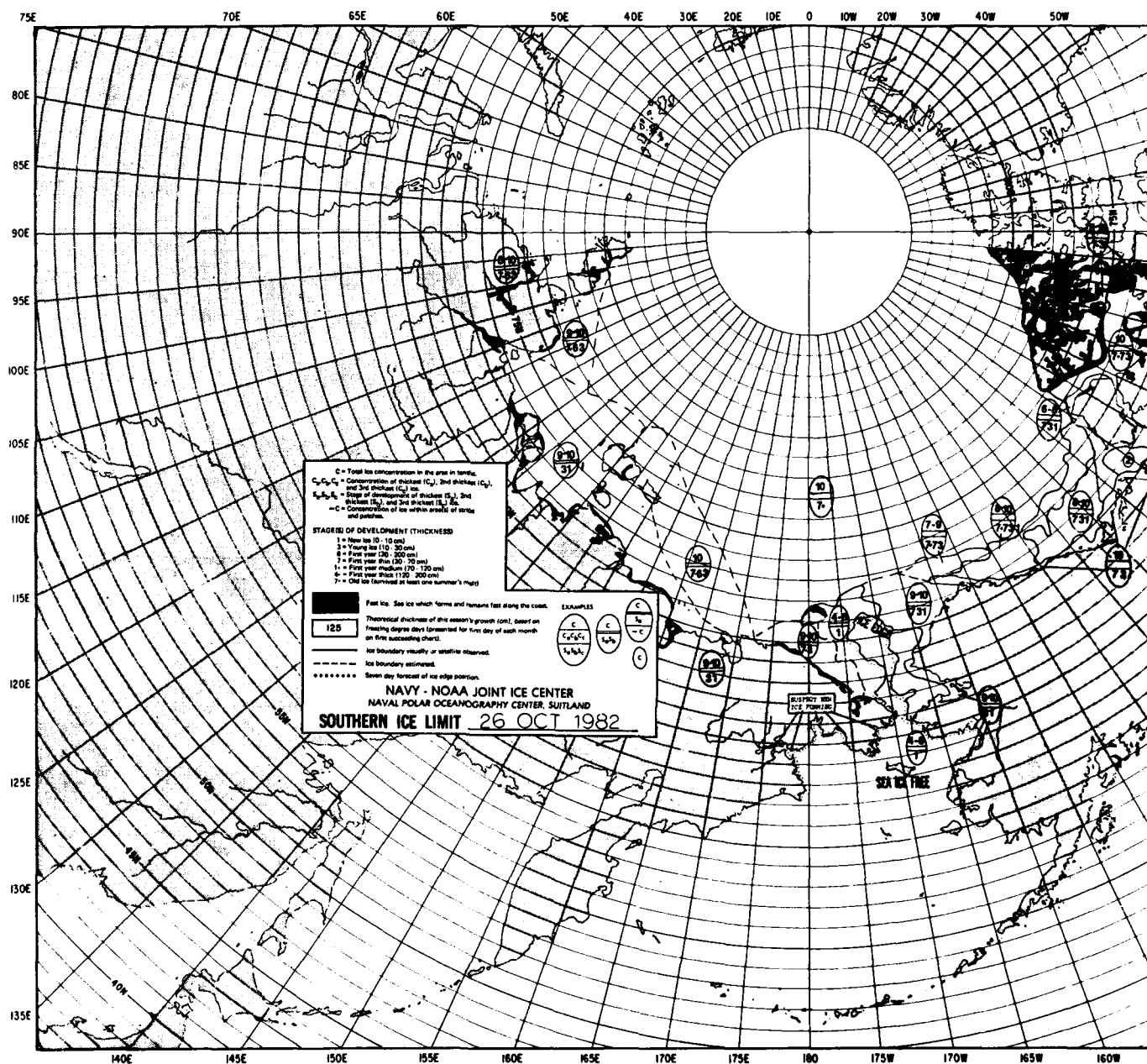
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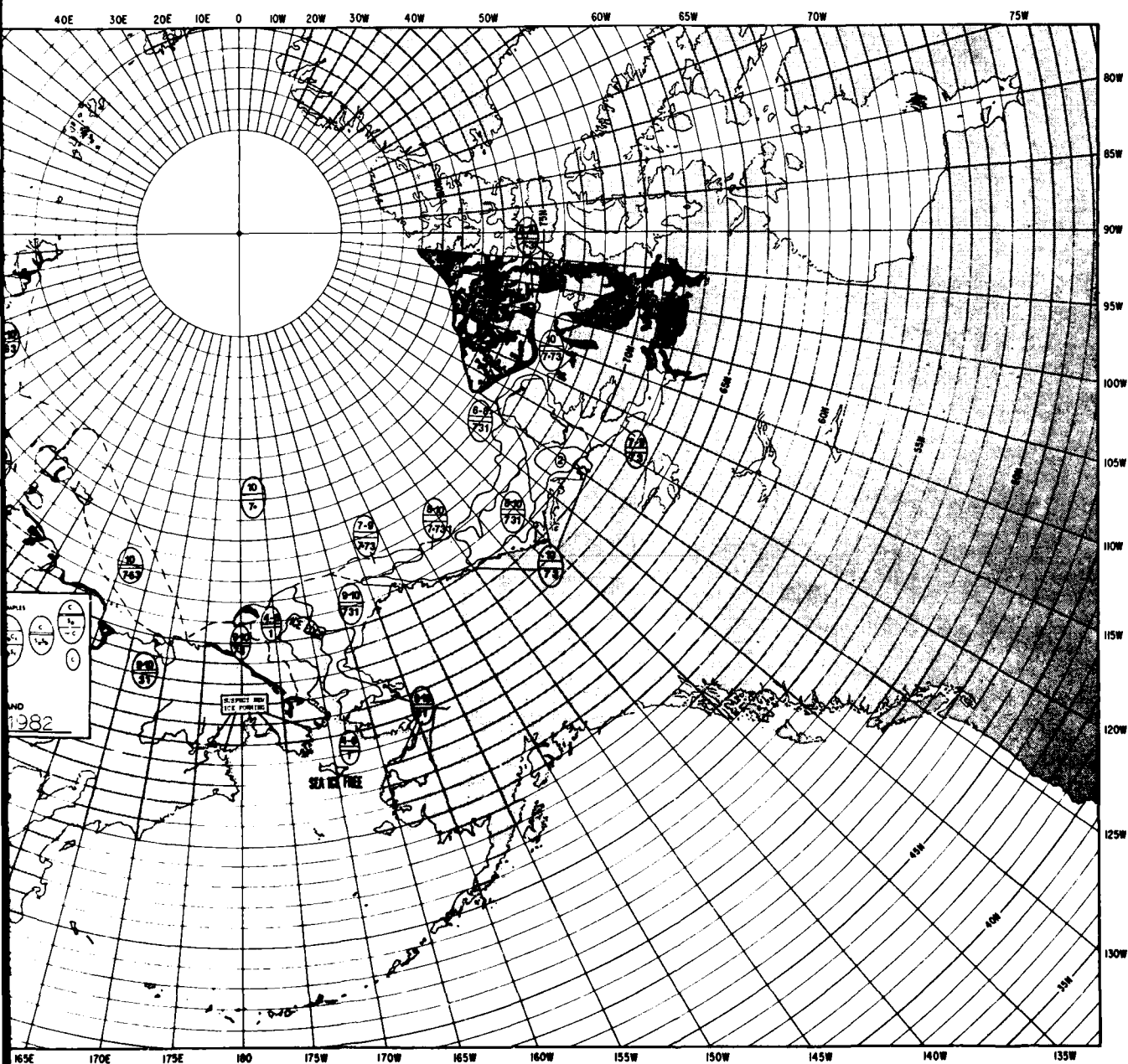
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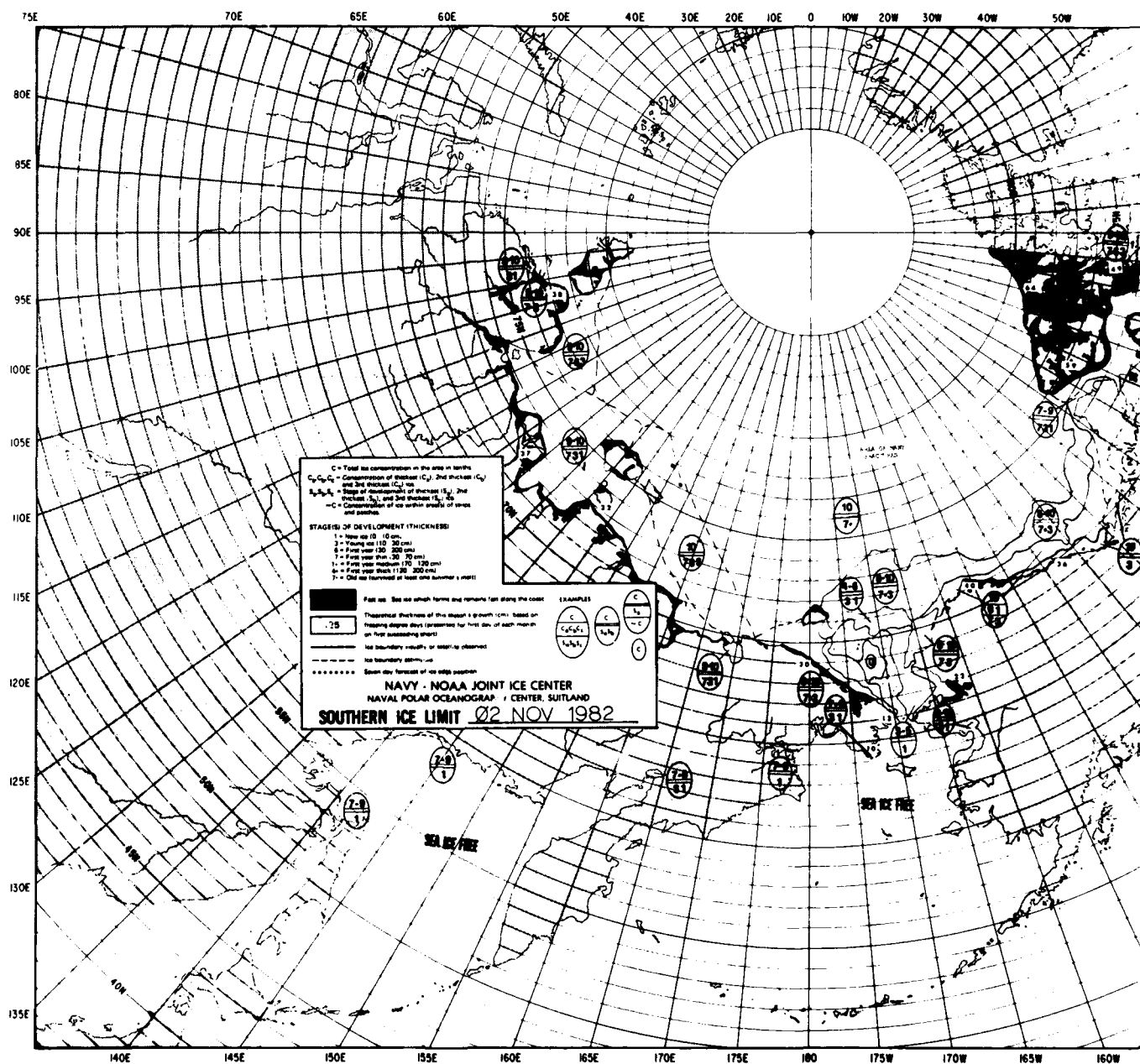


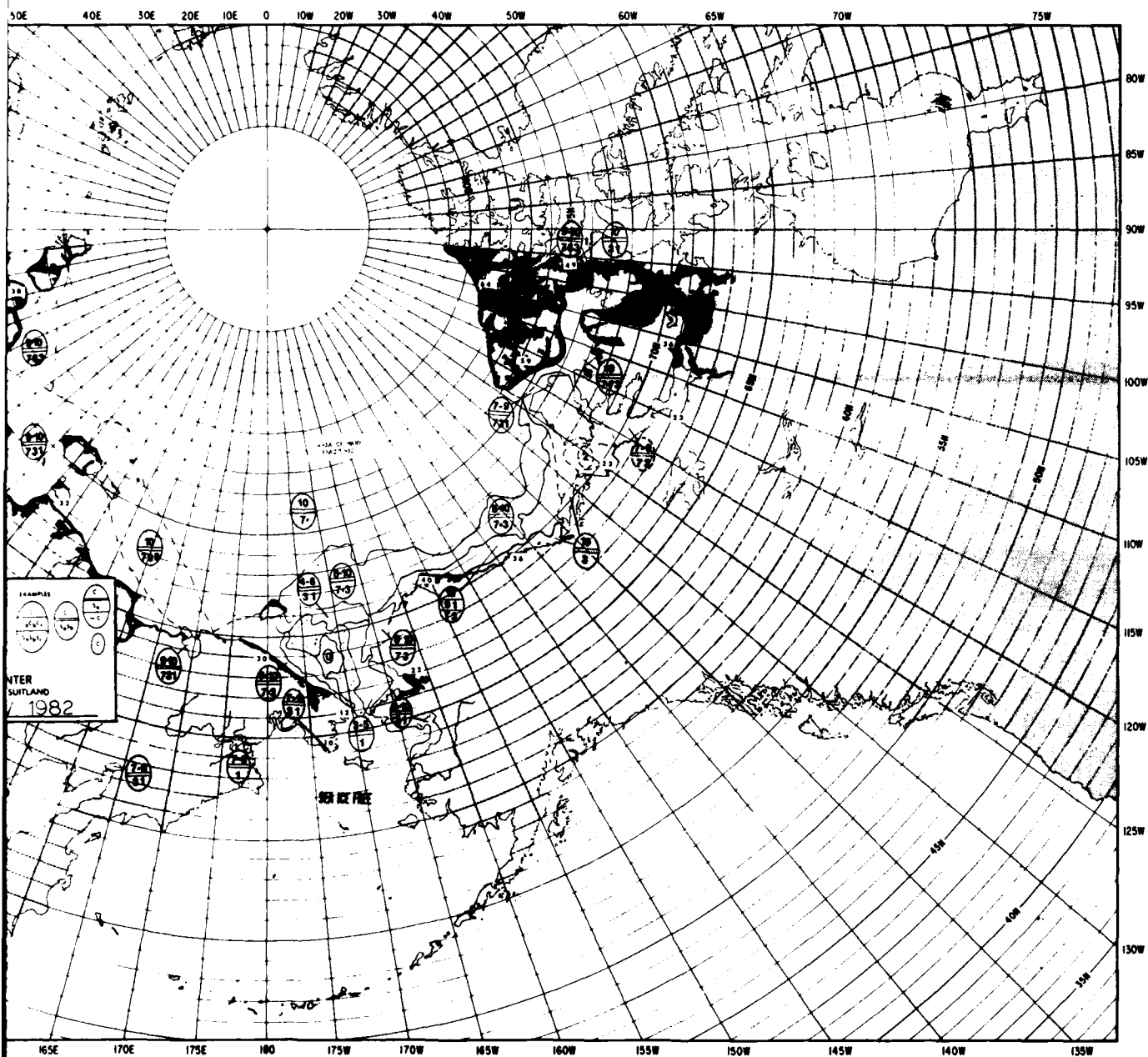


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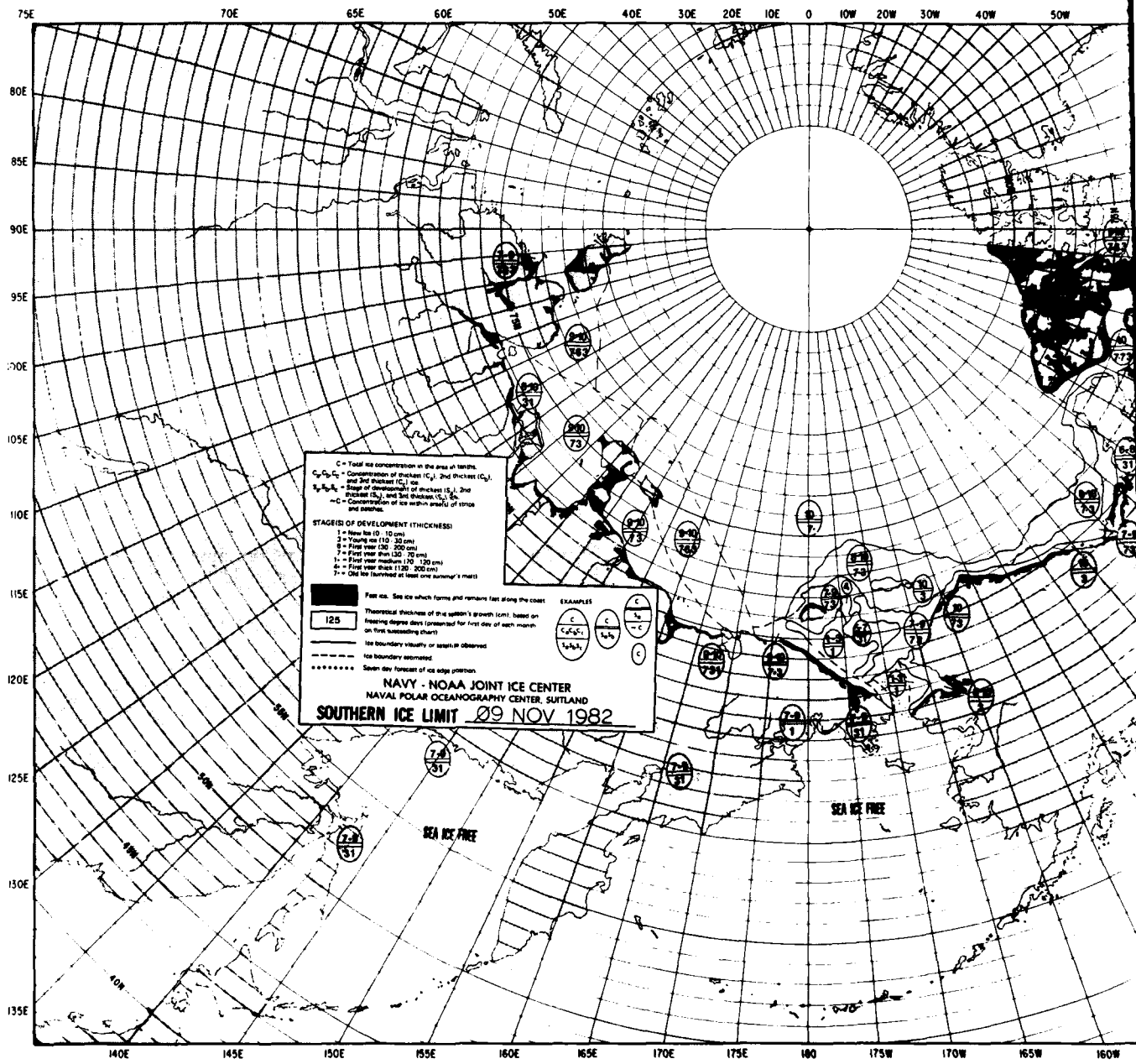


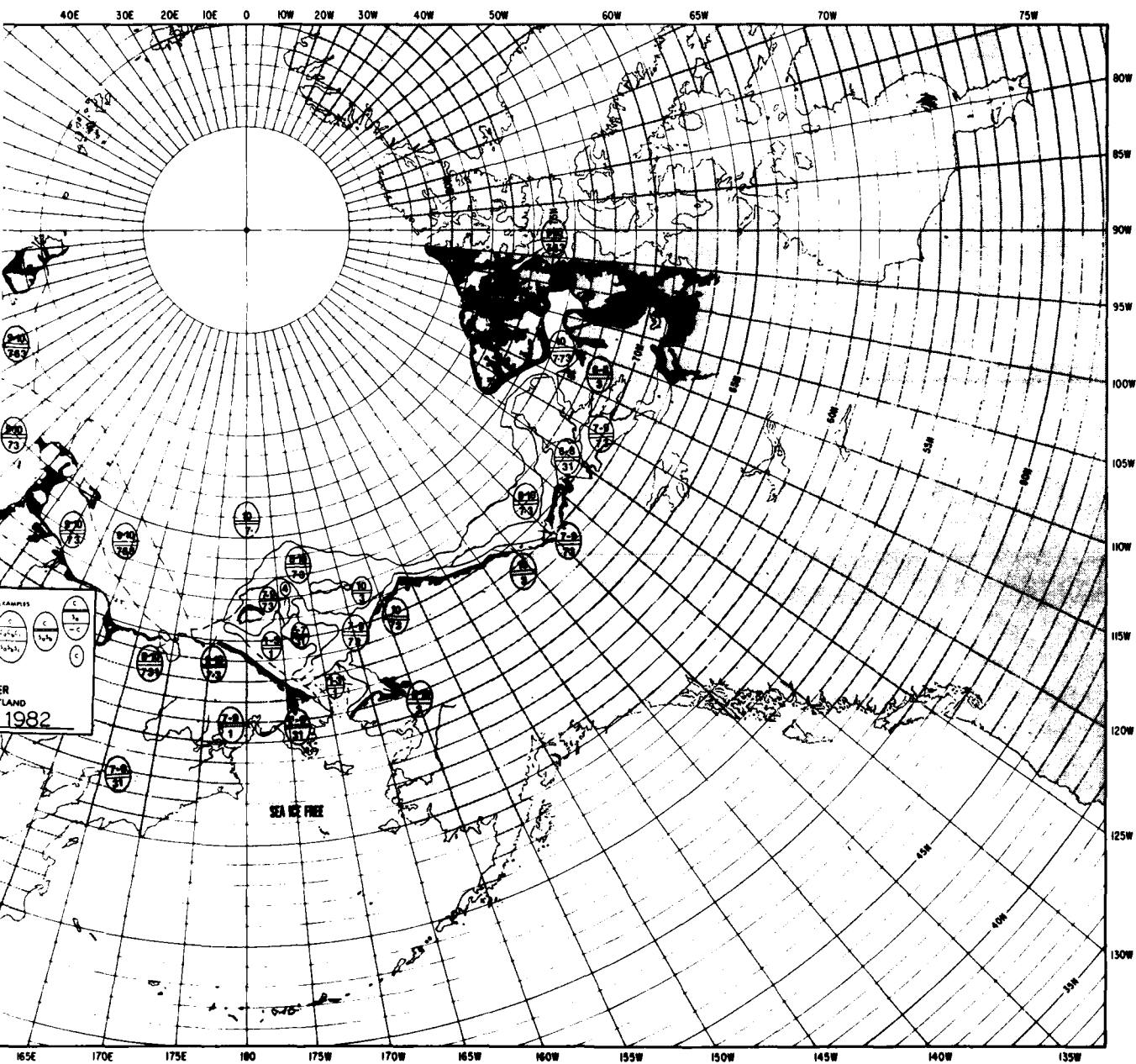




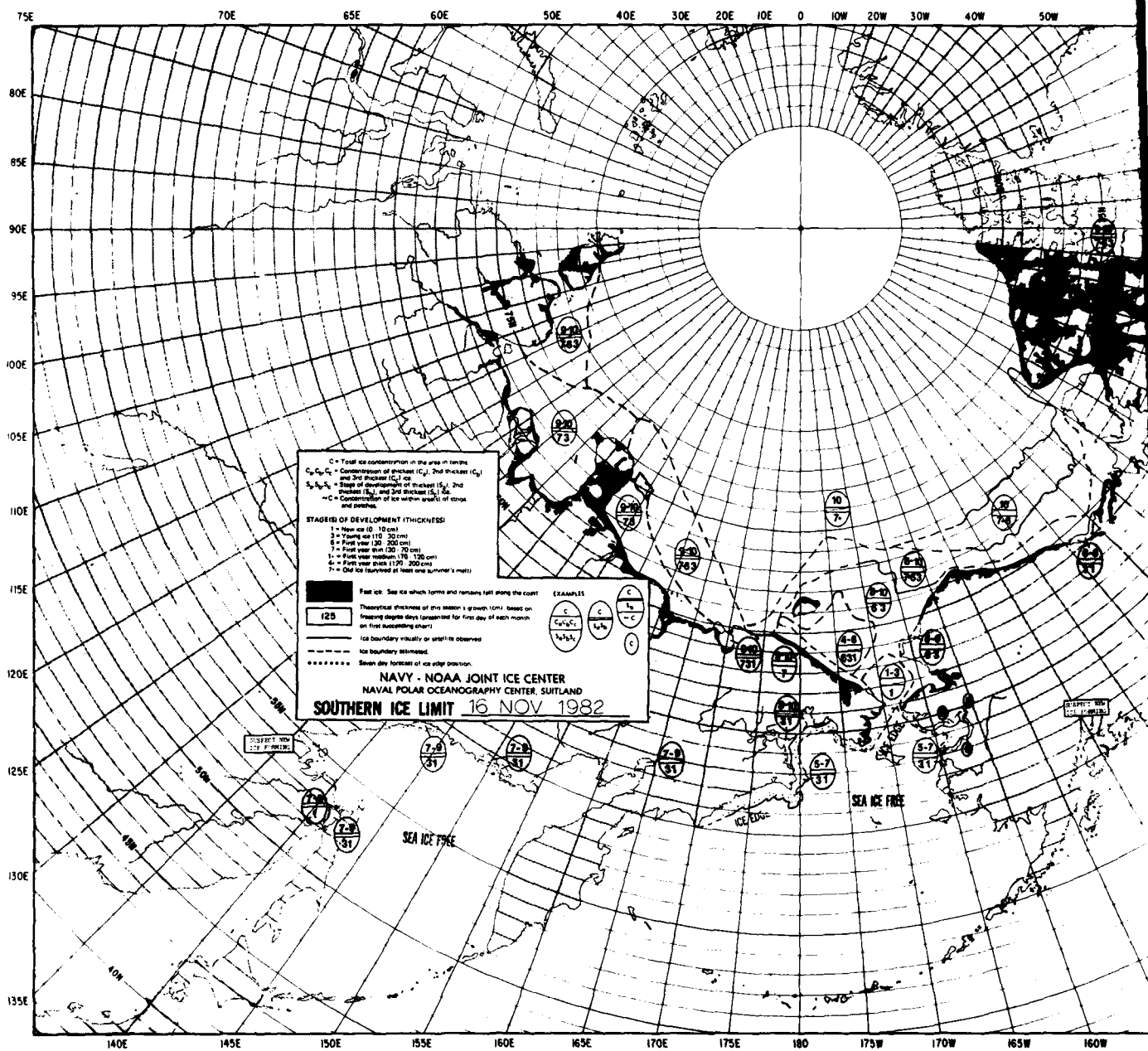


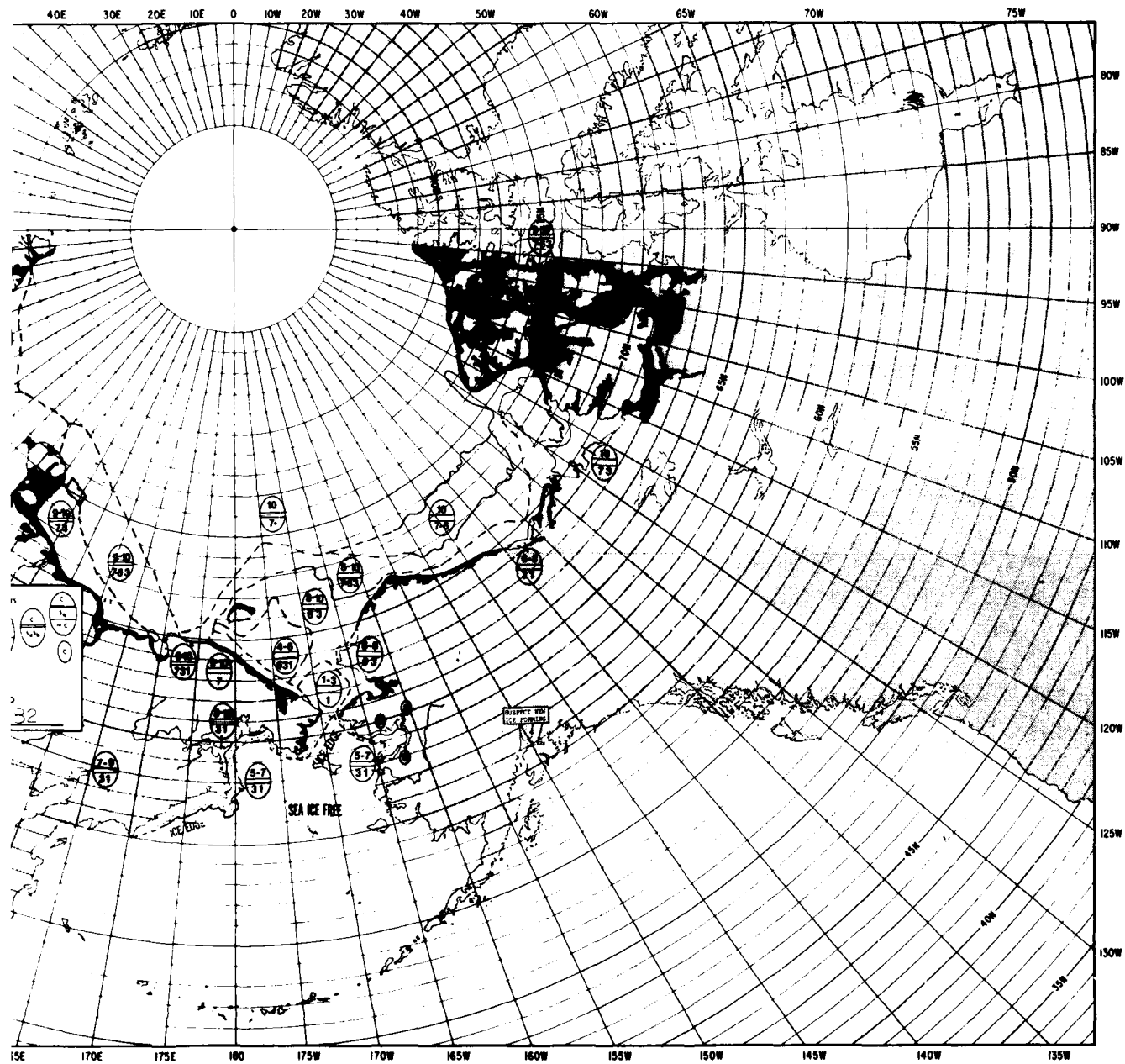
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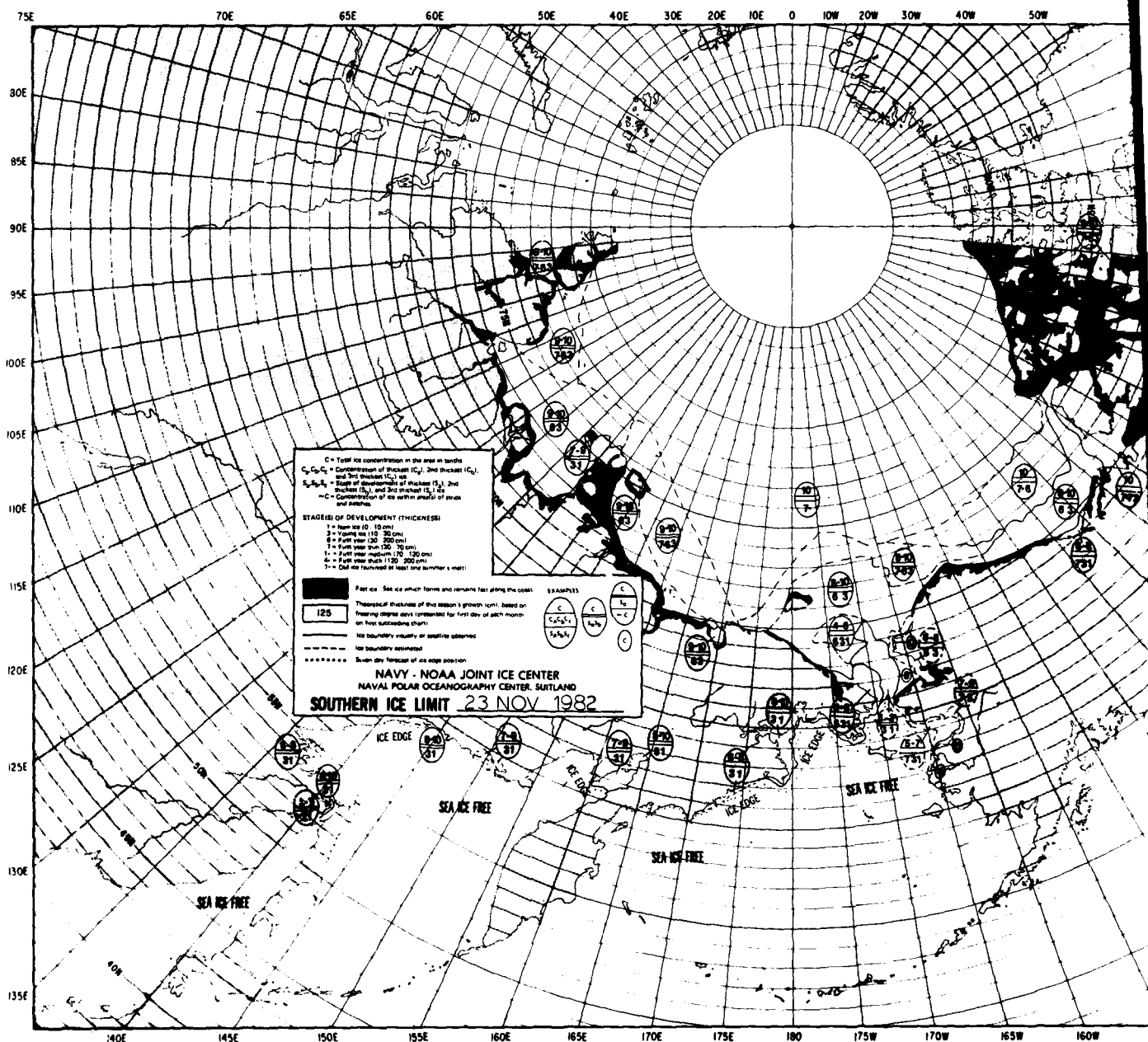


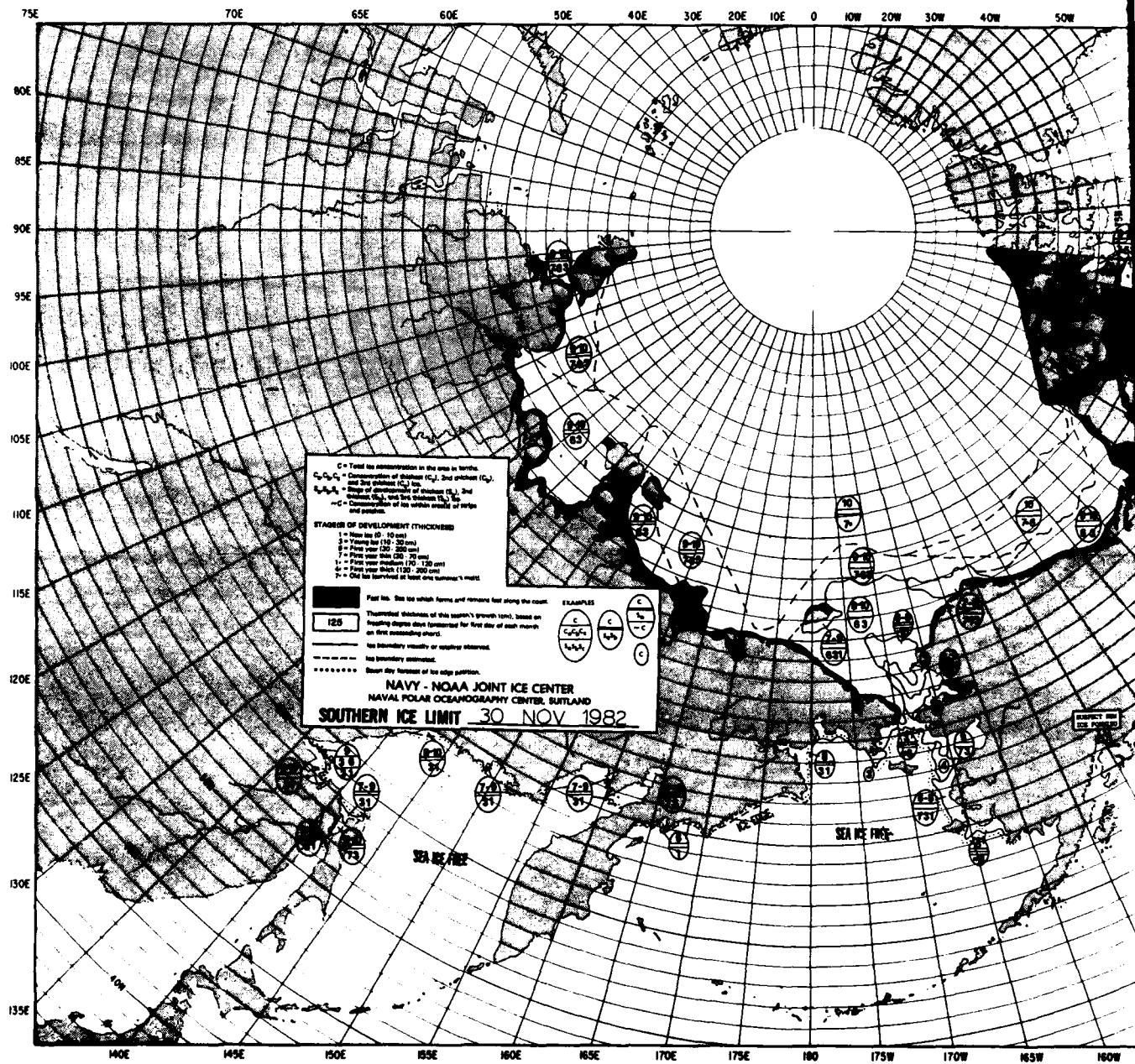
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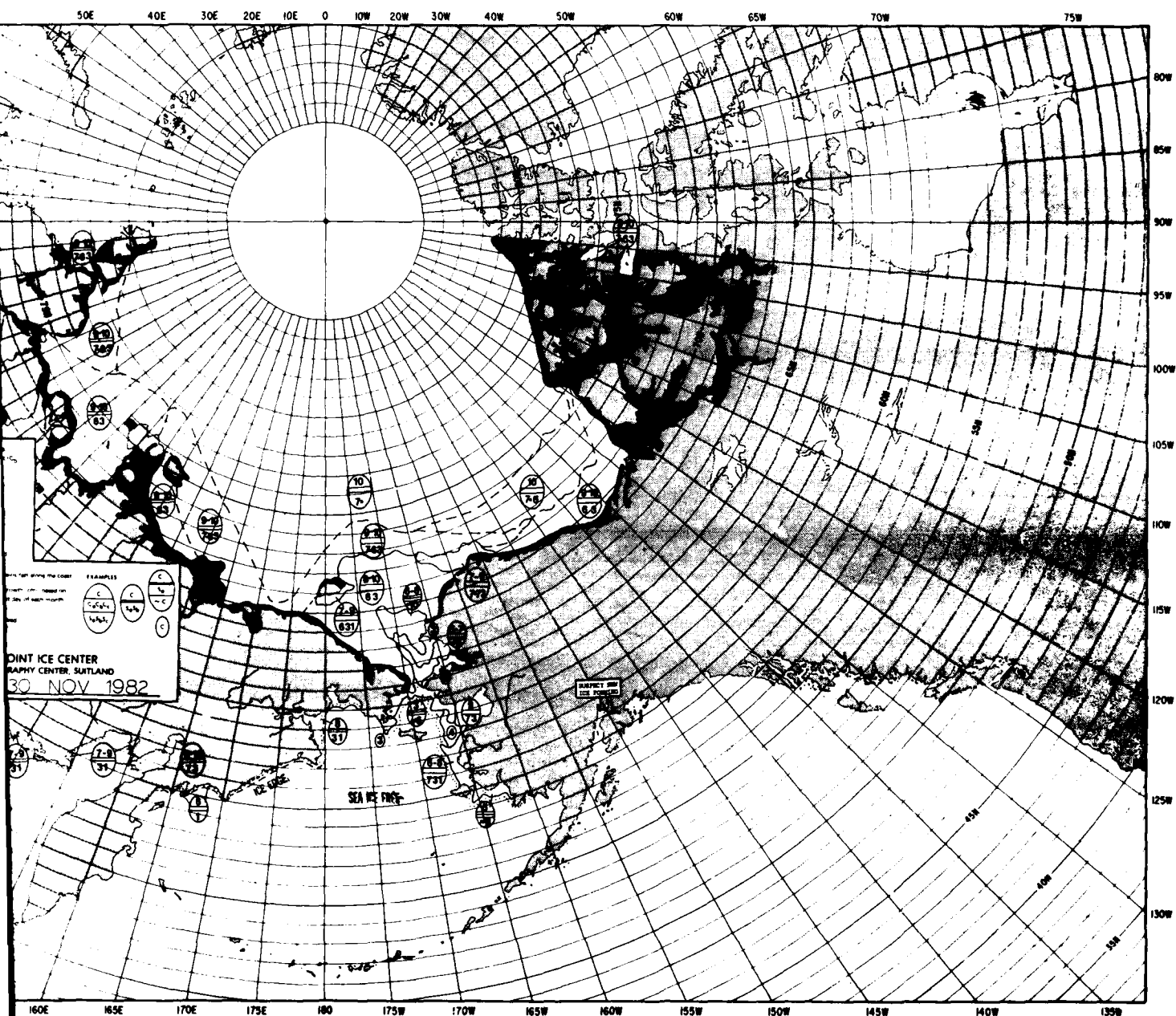




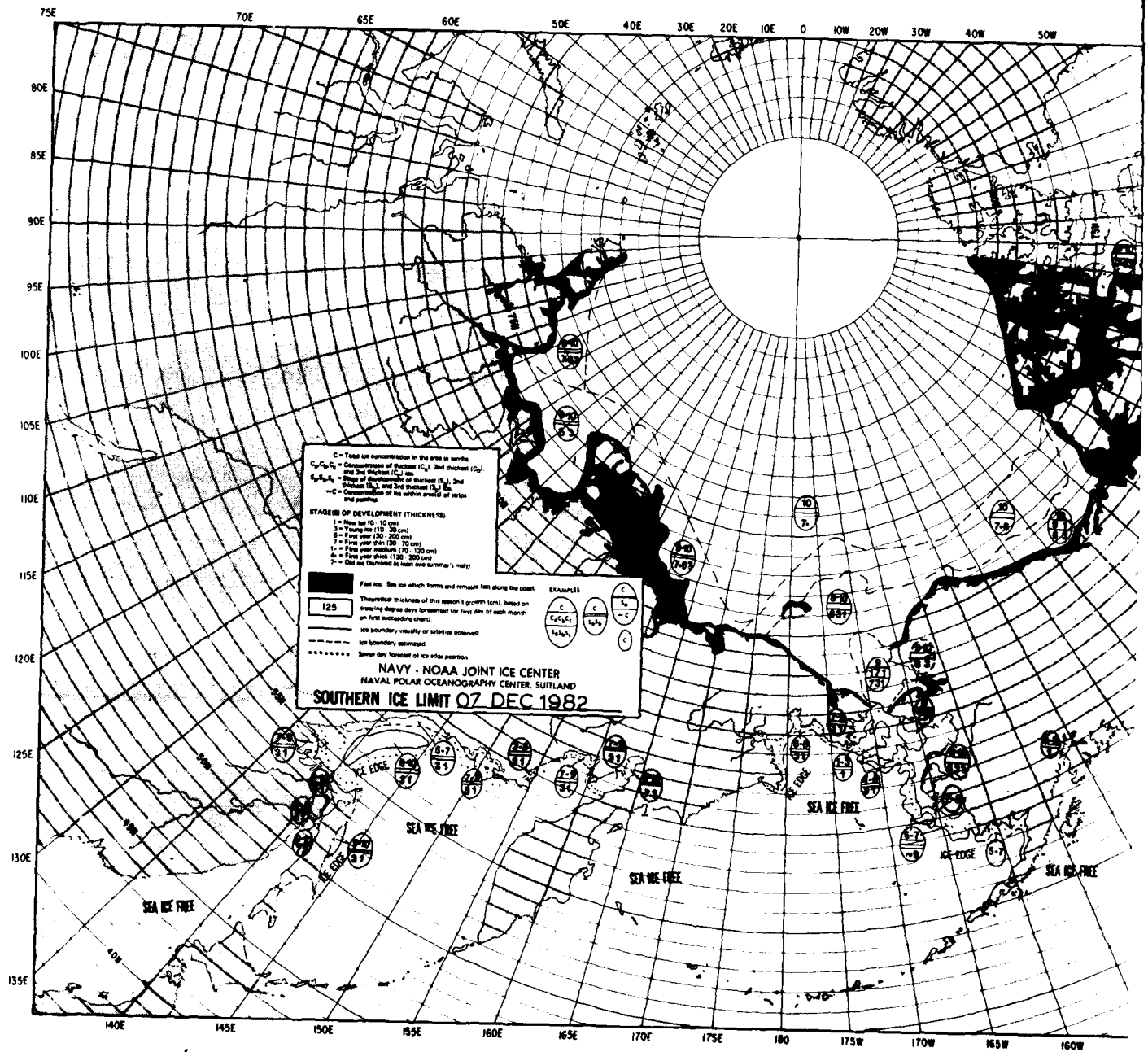
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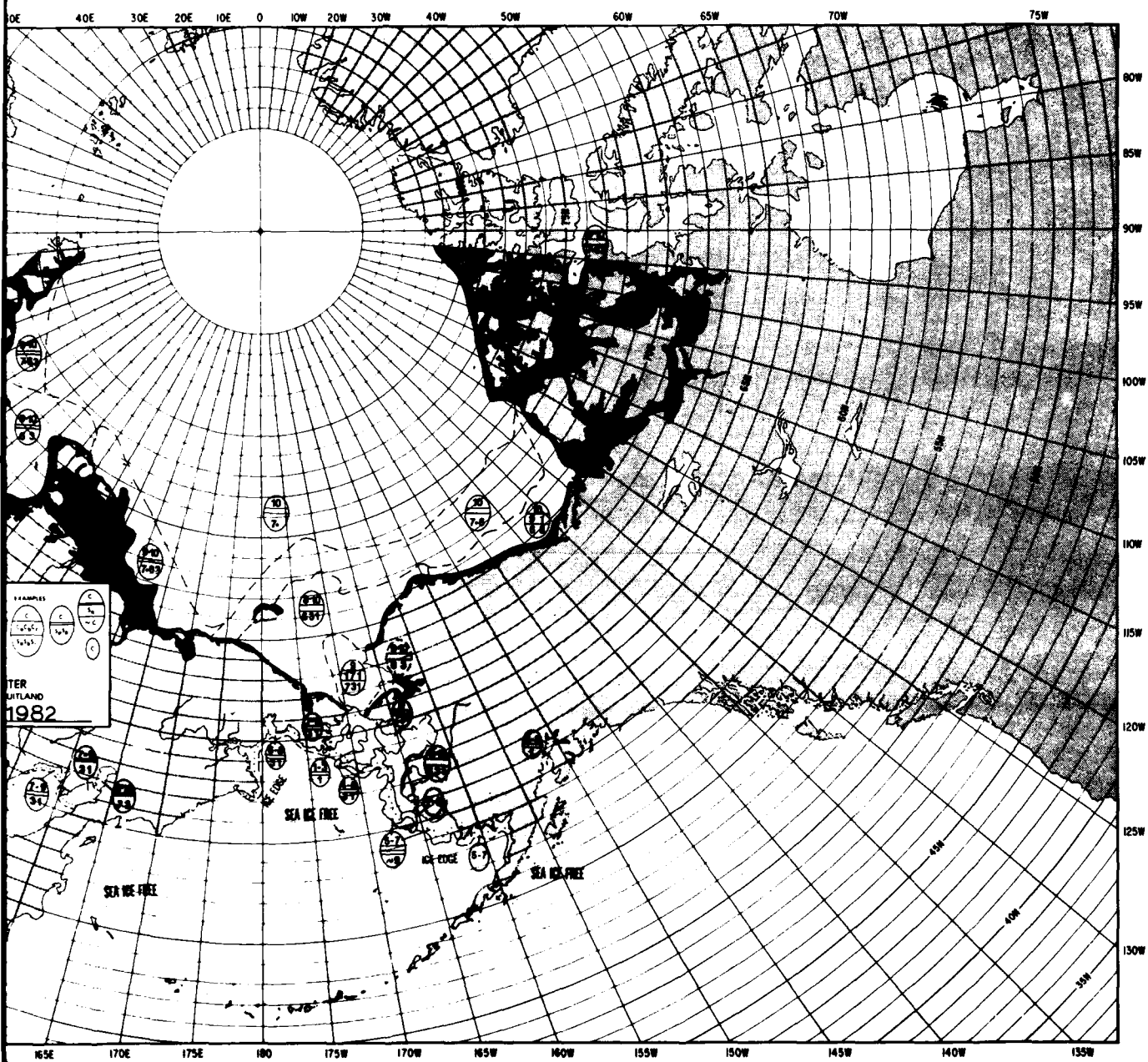




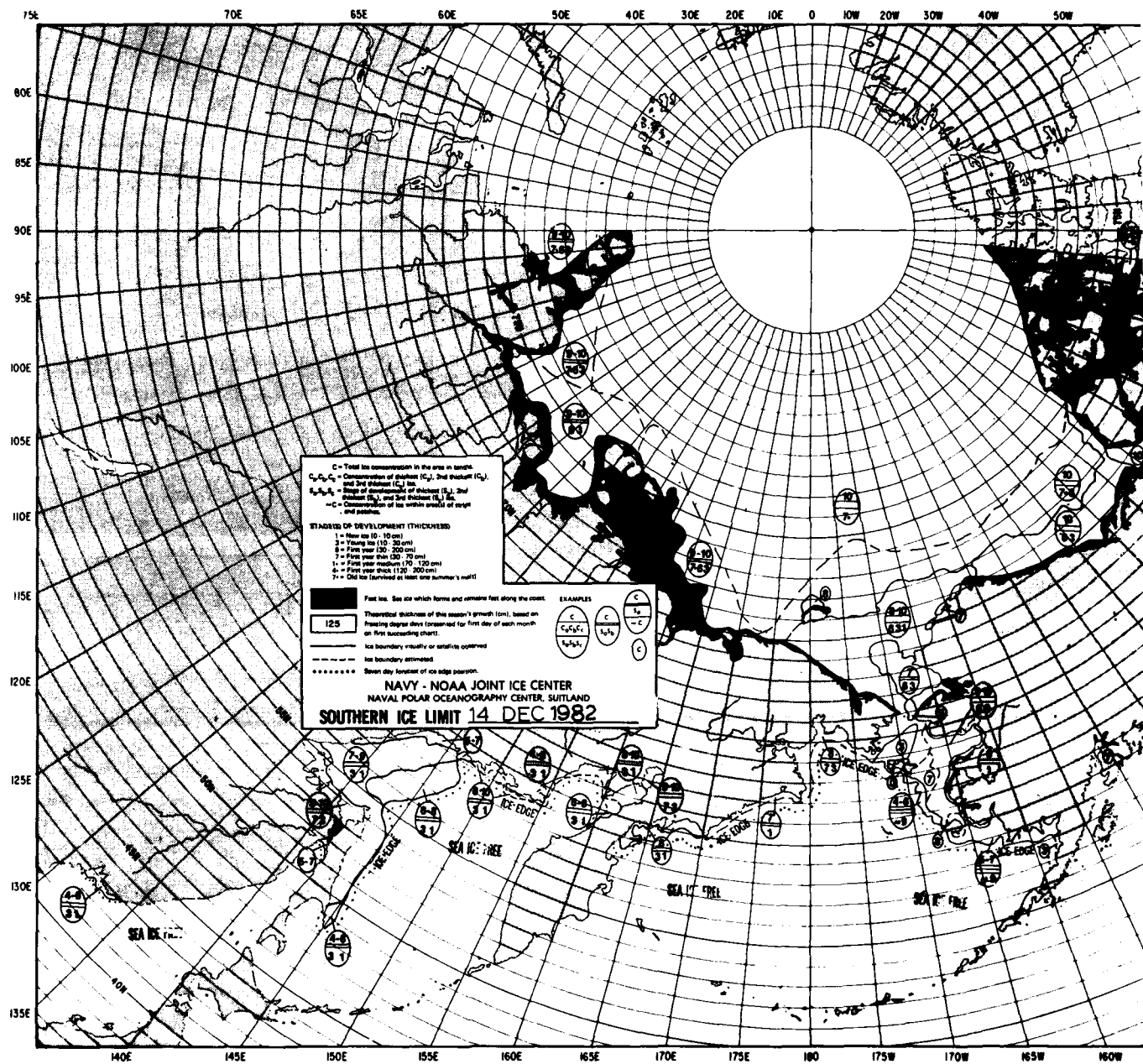


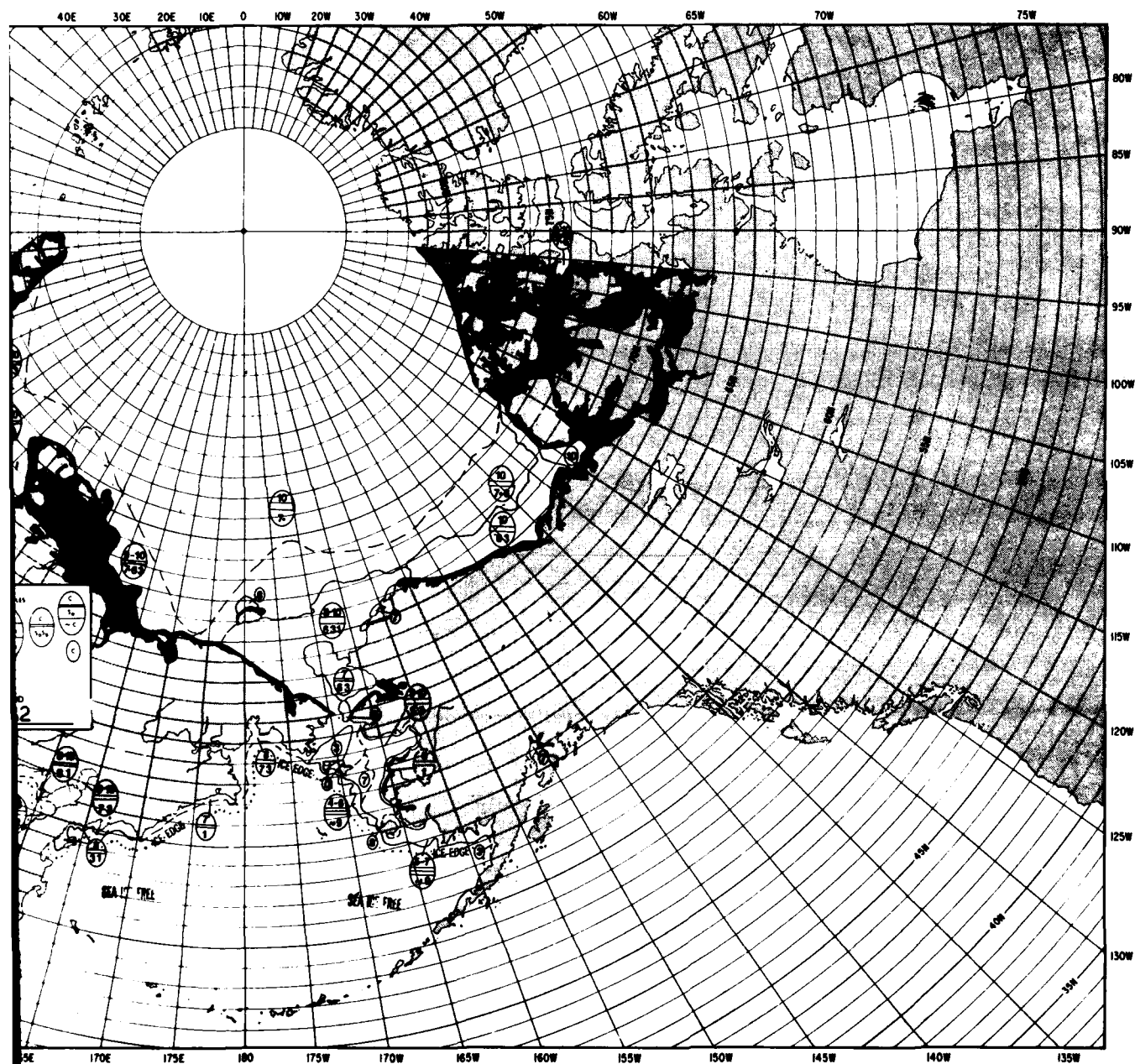
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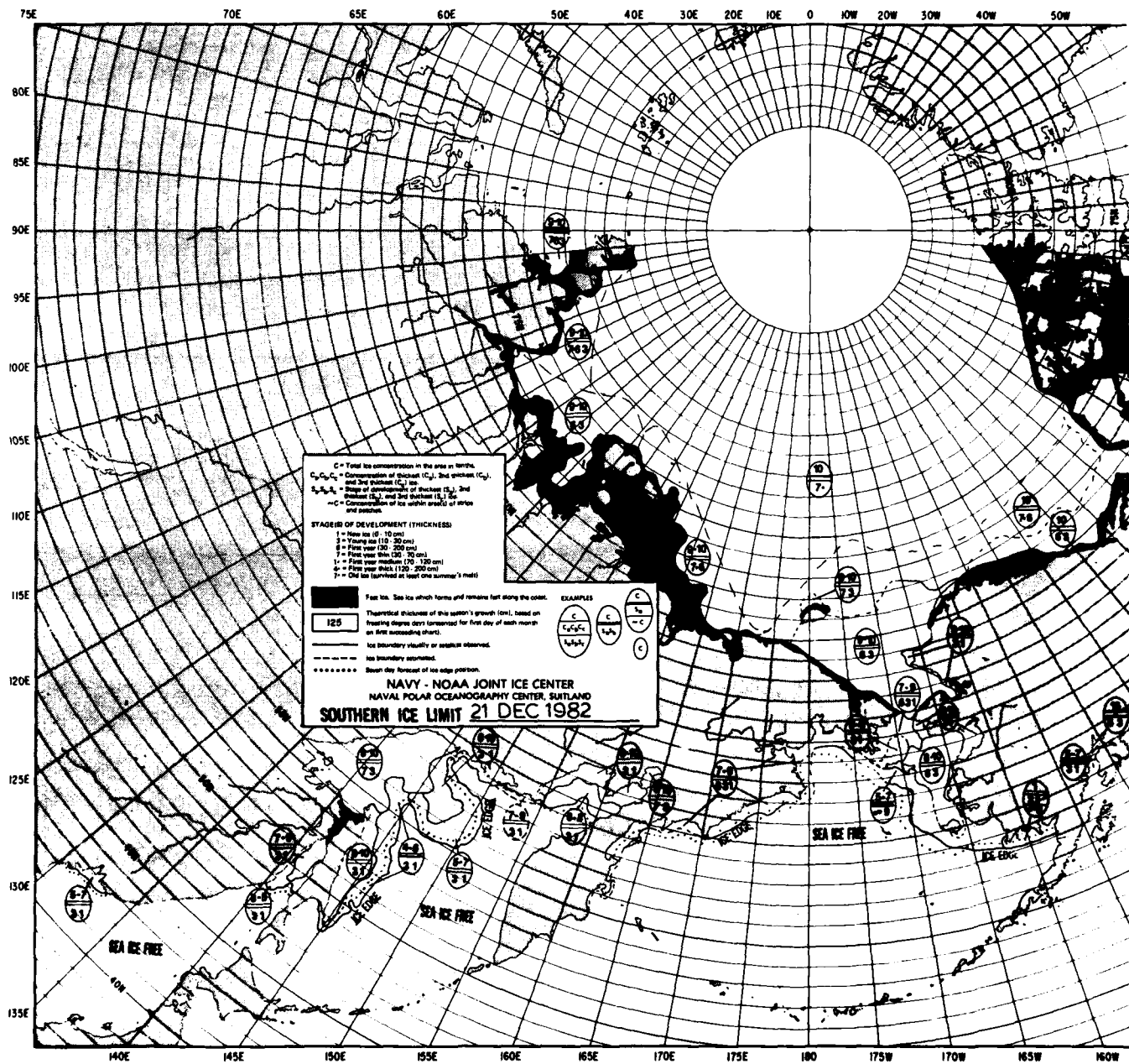


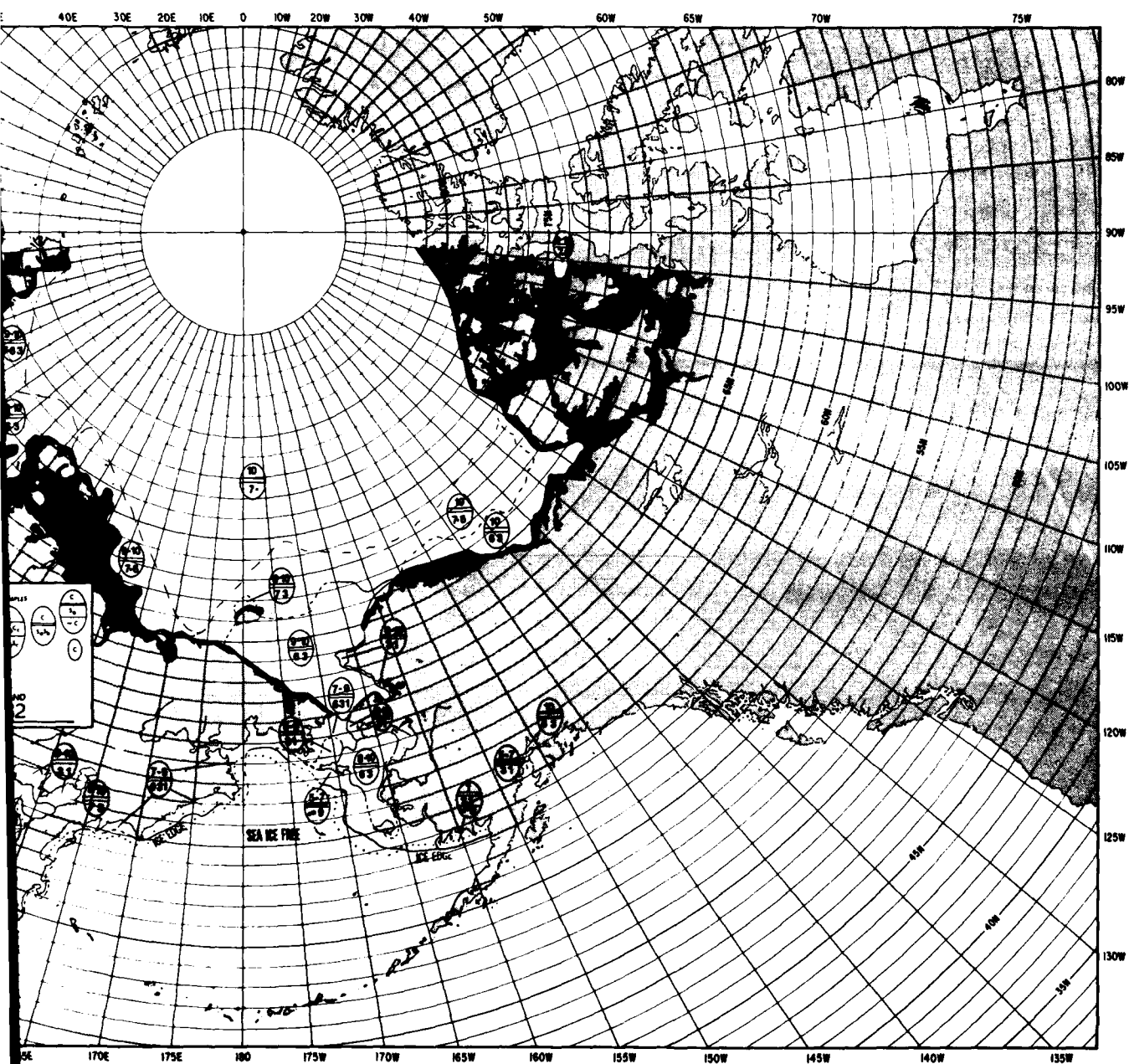
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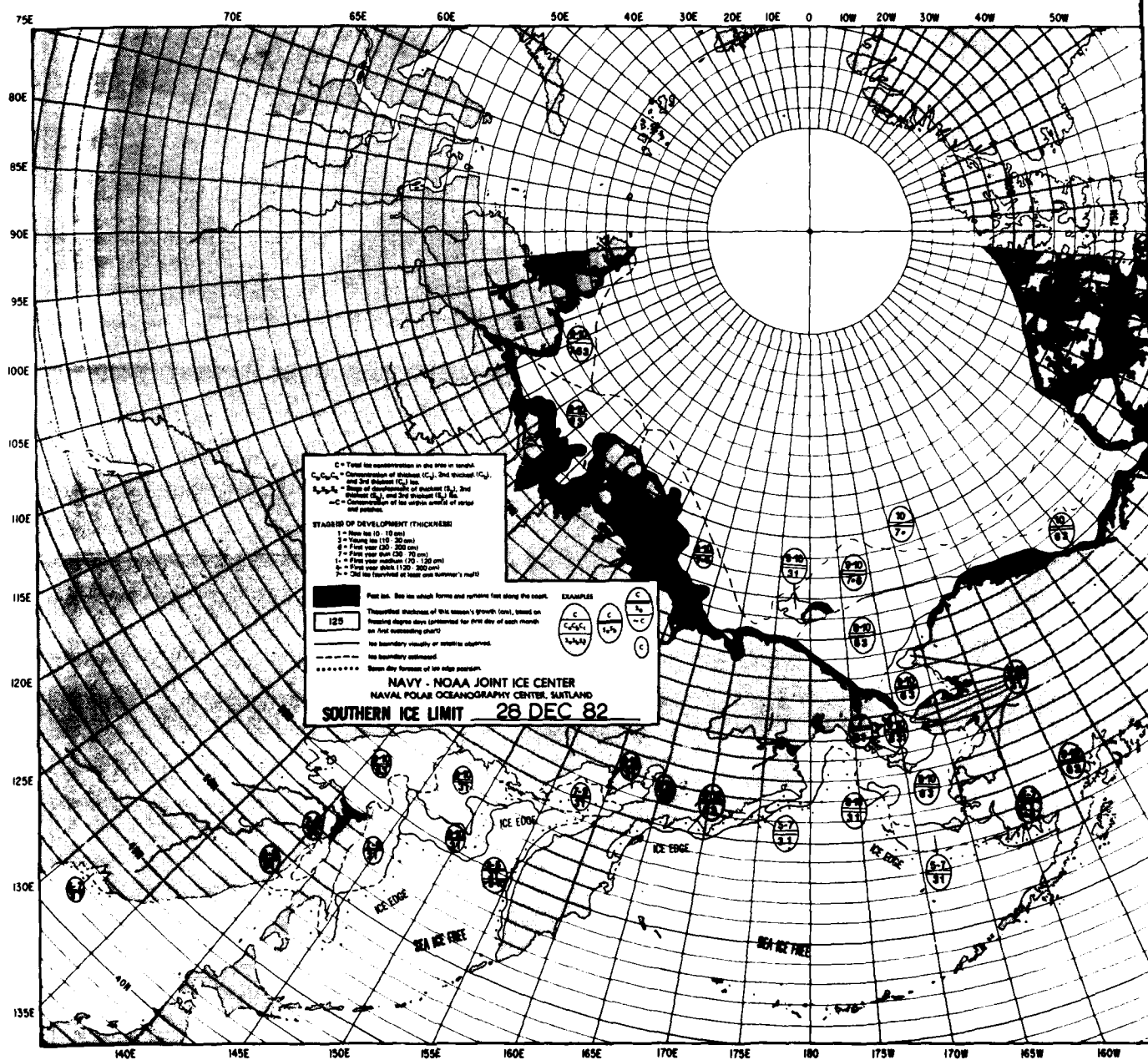


TABLE 1 SATELLITE DATA UTILIZED DURING 1982

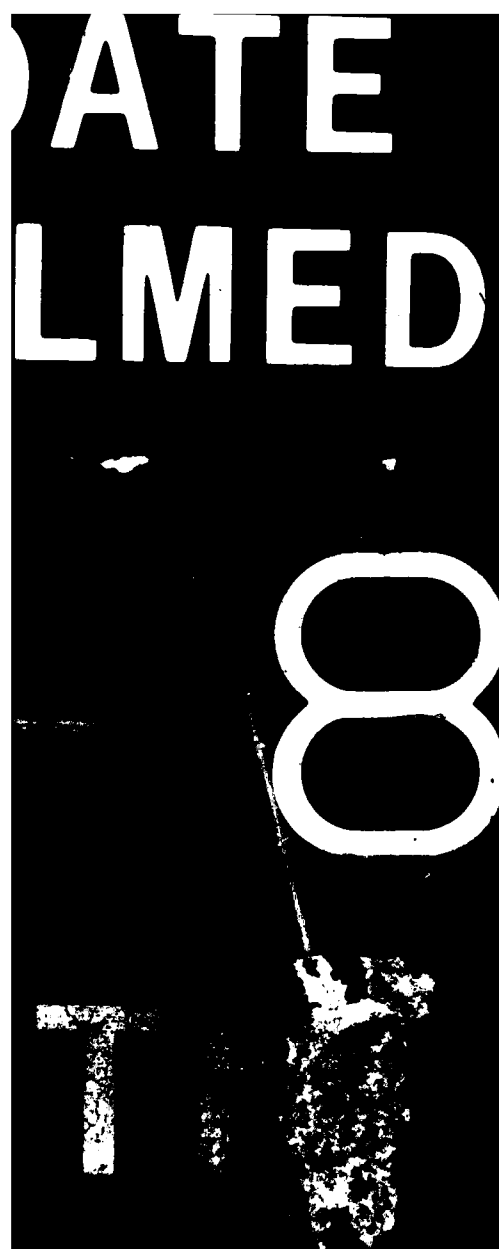
Time Period		Satellite Remote Sensing			Resolution	Coverage
From	To	Sensor Platform	Sensor Type	Spectral Region		
1-82	12-82	NOAA-6	AVHRR HRPT/LAC VIS NIR IR IR	0.55-0.68 um 0.73-1.10 um 3.55-3.93 um 10.5-11.5 um	1km	Regional
			GAC VIS IR	0.55-0.68 um 10.5-11.5 um	4km	Global
1-82	12-82	NOAA-7	AVHRR HRPT/LAC VIS NIR IR IR	0.58-0.68 um 0.73-1.10 um 3.55-3.93 um 10.3-11.3 um	1km	Regional
			GAC VIS IR	0.58-0.68 um 10.3-11.3 um	4km	Global
1-82	11-82	NIMBUS-5 *	ESMR	1.55 cm	25km	Global
11-82	12-82					Regional
1-82	12-82	NIMBUS-7	SMR	0.81 cm 1.66 cm	50km	Global

Abbreviations and Acronyms

AVHRR - Advanced Very High Resolution Radiometer
 cm - Centimeter
 ESMR - Electrically Scanning Microwave Radiometer
 GAC - Global Area Coverage
 HRPT - High Resolution Picture Transmission
 IR - Infrared
 km - Kilometer

LAC - Local Area Coverage
 NIR - Near Infrared
 SMR - Scanning Multifrequency Microwave Radiometer
 VHRR - Very High Resolution Radiometer
 VIS - Visual
 um - Micrometer

* NIMBUS-5 recorders failed on 23 November 1982, limiting data to the Alaska region.



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EASTERN-WESTERN ARCTIC SEA ICE ANALYSIS 1982(U) NAVAL
POLAR OCEANOGRAPHY CENTER WASHINGTON DC MAR 83

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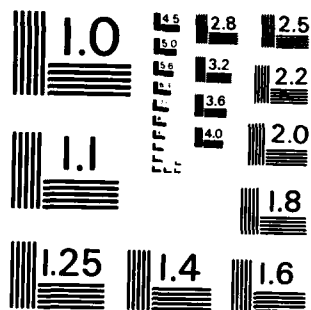


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These are approximately 7-days analysis of sea ice prepared by the Naval Polar Oceanography Center, Suitland, MD. Included are ice concentration and ice thickness (age).		

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